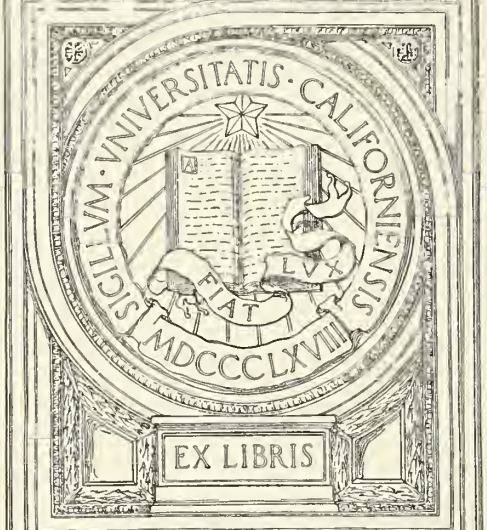
UC-NRLF
C 3 257 422

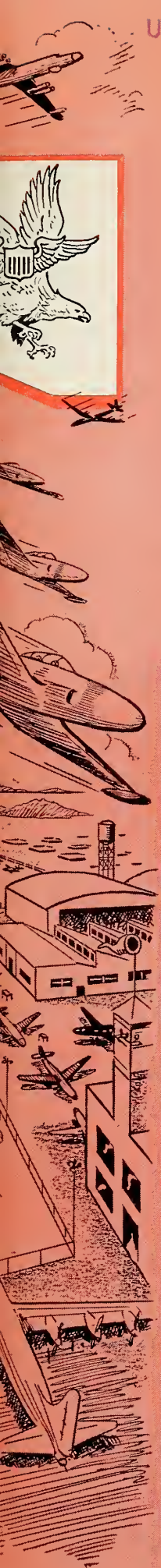
UNIVERSITY OF CALIFORNIA
MEDICAL CENTER LIBRARY
SAN FRANCISCO




Digitized by the Internet Archive
in 2016

https://archive.org/details/arizonamedicinej10unse

U. C. MEDICAL LIBRARY
FEB 3 1953
San Francisco 22



Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC.
ORGANIZED 1892
INCORPORATED 1950 ARIZONA

Lilly ADVERTISED SOLELY TO THE MEDICAL AND ALLIED PROFESSIONS

Research that never stops

VOL. 10, No. 1 • JANUARY, 1953 • TABLE OF CONTENTS — PAGE 5

in the hands of the physician

Often the critical evaluation of the drug to be administered is as important to the patient's recovery as is the diagnosis of his condition. In each case correct procedures can be determined only by the physician.

CHLOROMYCETIN is eminent among drugs at the disposal of the medical profession. Clinical findings attest that, in the hands of the physician, this widely used, broad spectrum antibiotic has proved invaluable against a great variety of infectious disorders.

Chloromycetin®

notably effective, well tolerated, broad spectrum antibiotic

The many hundreds of clinical reports on CHLOROMYCETIN emphasize repeatedly its exceptional tolerance as demonstrated by the infrequent occurrence of even mild signs and symptoms of gastrointestinal distress and other side effects in patients receiving the drug.

Similarly, the broad clinical effectiveness of CHLOROMYCETIN has been established, and serious blood disorders following its use are rare. However, it is a potent therapeutic agent, and should not be used indiscriminately or for minor infections—and, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 1 JANUARY, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

CANCER DETECTION 1
Ian Macdonald, M.D., Los Angeles, California
SUPERIOR VENA CAVA OBSTRUCTION IN PRIMARY CANCER OF THE LUNG 10
Bernard M. Lipschultz, M.D., Phoenix, Arizona
SURGICAL PATHOLOGY IN EVERYDAY MEDICAL PRACTICE 13
Osborne A. Brines, M.D., Detroit, Michigan
RADIOACTIVE IODINE IN DISEASES OF THE THYROID GLAND 16
Drs. E. W. Czerny and H. D. Cogswell, Tucson, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 18

THE PRESIDENT'S PAGE

EXTENSION OF PUBLIC LAW NO. 779 26

EDITORIAL

ACTH AND CORTISONE 27

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX AND DRS. 28
Guillermo Osler, M.D.
MARICOPA COUNTY MEDICAL SOCIETY RESOLVES 32
COUNCIL MEETING 33
REPORT OF THE DELEGATE 34
Jesse D. Hamer, M.D., Phoenix, Arizona
MEMO TO BUSY PHYSICIANS 38
C. W. Dudding, Chairman, Executive Committee, Arizona Pharmaceutical Ass'n.
DOCTOR-DRAFT LAW EXTENTION 39
CIVILIAN MEDICAL CARE FOR ARMY PERSONNEL 40
FIRST WORLD CONGRESS ON FERTILITY & STERILITY 41
HILL-BURTON HOSPITAL 41

WOMAN'S AUXILIARY

WE HAVE HOMEWORK TO DO 43
Mrs. George S. Enfield, Phoenix, Arizona

DIRECTORY

SANATORIUM DIRECTORY XIX
DRUGGISTS DIRECTORY XXIII
PHYSICIANS' DIRECTORY XXVIII

Published monthly by the Arizona Medical Association. Business office at 426 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Pboenix, Arizona, Act of March 3, 1879.

92100

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Thomas H. Bate, M.D. ..... President
15 East Monroe, Phoenix, Arizona
Edward M. Hayden, M.D. ..... President-Elect
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... Vice-President
1313 N. 2nd Street, Phoenix, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Harry E. Thompson, M.D. ..... Speaker of House
435 N. Tucson Boulevard, Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
15 East Monroe, Phoenix, Arizona
Kent Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Donald E. Nelson, M.D. ..... Southeastern District
509 — 5th Avenue, Safford, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 — 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Harry T. Southworth, M.D. ..... Past President
P. O. Box 788, Prescott, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Otto E. Utzinger, M. D., Ray.

HISTORY & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Walter Brazie, M. D., Kingman; Martin G. Fronske, M. D., Flagstaff; Juan S. Gonzales, M. D., Nogales; Charles B. Huestis, M. D., Hayden; Frederick W. Knight, M. D., Safford; Charles H. Laugharn, M. D., Morenci; Harry B. Lehmberg, M. D., Casa Grande; Claude H. Peterson, M. D., Winslow; Robert E. Rider, M. D., Yuma; Reed D. Shupe, M. D., Phoenix; William B. Steen, M. D., Tucson

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford.

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Joseph Bank, M. D., Phoenix; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1952 - 1953

President ..... Mrs. W. F. Schoffman
36 North Country Club Drive, Phoenix
President Elect ..... Mrs. George S. Enfield
335 West Cambridge, Phoenix
Vice-Pres. 1st (organization) ..... Mrs. Brick Storts
El Encanto Estates, Tucson
Vice-Pres. 2nd (Program) ..... Mrs. Hugh Thompson
135 Palomar Drive, Tucson
Treasurer ..... Mrs. R. Lee Foster
2215 North 11th Avenue, Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. L. L. Tuveson
346 West LaMar Rd., Phoenix
Director 1 Yr. ..... Mrs. J. H. Allen
829 Country Club Drive, Prescott
Director 1 Yr. ..... Mrs. R. W. Rudolph
Hiawatha Bldg., Apt. 27, 331 S. Alvernon Way, Tucson
Director 2 Yr. ..... Mrs. T. C. Harper
175 South 3rd Street, Globe
National Representative ..... Mrs. Jesse D. Hamer
1819 North 11th Avenue, Phoenix
Bulletin ..... Mrs. Hiram Cochran
2716 East 4th St., Tucson
Civil Defense ..... Mrs. Harry Cumming
517 W. Rose Lane, Phoenix
Finance ..... Mrs. Paul S. Causey
38 West Camelback Rd., Phoenix
Health Education ..... Mrs. Roy E. Hewitt
130 Camino Miramonte, Tucson
Historian ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Legislation ..... Mrs. George A. Williamson
537 West Rose Lane, Phoenix
Parliamentarian ..... Mrs. V. G. Presson
1317 North Stone, Tucson
Publicity ..... Mrs. John R. Green
2221 North 40th Street, Phoenix
Public Relations ..... Mrs. J. K. Bennett
2325 East Waverly, Tucson
Revisions ..... Mrs. Delbert Secrist
2527 East 3rd St., Tucson
State Nurses Loan Fund ..... Mrs. Carlos C. Craig
727 Encanto Drive SE, Phoenix
Today's Health ..... Mrs. Paul Jarrett
501 East Pasadena, Phoenix
Nominating Chairman ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix

GILA COUNTY

President ..... Mrs. I. E. Harris
Box 1296, Miami
Vice-Pres. ..... Mrs. Nelson D. Brayton
823 Merritt, Miami
Sec.-Treas. ..... Mrs. Wm. E. Bishop
605 South 3rd Street, Globe

MARICOPA COUNTY

President ..... Mrs. Archie E. Cruthirds
60 E. Country Club Dr., Phoenix
Pres.-Elect ..... Mrs. Paul Jarrett
501 E. Pasadena, Phoenix
1st Vice-Pres. ..... Mrs. Robert Cummings
5830 Arcadia Lane, Phoenix
2nd Vice-Pres. ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Rec.-Sec. ..... Mrs. A. I. Ramenofsky
916 E. Camhridge, Phoenix
Cor.-Rec. ..... Mrs. Robert Price
335 West Wilshire, Phoenix
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 17th Street, Phoenix

GRAHAM COUNTY

President ..... Mrs. Frederick W. Knight
Safford
Vice-Pres. ..... Mrs. Noel Grey Smith
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hollis H. Brainard
328 N. Country Club Rd., Tucson
Pres-Elect ..... Mrs. Hugh C. Thompson
135 Palomar Drive, Tucson
1st Vice-Pres. ..... Mrs. Darwin Neubauer
3017 E. Loretta Drive, Tucson
2nd Vice-Pres. ..... Mrs. Jackson Pyre
4141 East Killmer, Tucson
Rec.-Sec. ..... Mrs. Phillip G. Derickson
2841 E. Exeter Dr., Tucson
Cor.-Sec. ..... Mrs. David E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th Street, Tucson

PINAL COUNTY

President ..... Mrs. J. B. Tucker
Box 1042. Casa Grande
Vice-Pres. ..... Mrs. G. H. Walker
Box 1225, Coolidge
Sec.-Treas. ..... Mrs. R. Z. Collings
Box 475, Casa Grande

YUMA COUNTY

President ..... Mrs. Charles S. Powell
698 Ninth Avenue, Yuma
Vice-Pres. ..... Mrs. John F. Stanley
201 1st Ave., Yuma
Sec.-Treas. ..... Mrs. John J. Klohy
Box 1590, Yuma

YAVAPAI COUNTY

President ..... Mrs. Joseph P. McNally
208 Grove Ave., Prescott
Vice-Pres. ..... Mrs. M. W. Phillips
829 Flora Ave., Prescott
Secretary ..... Mrs. E. C. Geever
Whipple Barracks, Whipple, Arizona
Treasurer ..... Mrs. Wm. R. Shepard
Hassayampa Country Club, Prescott

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 1 JANUARY, 1953

Original ARTICLES

CANCER DETECTION

A Realistic Appraisal of Its Value

Ian Macdonald, M. D.*
Los Angeles, California

Efforts directed toward the detection of cancer in an asymptomatic or silent stage constitutes a phase of cancer control which has come into prominence only during the past decade. Following the reports of such early workers in this field as Macfarlane there were many areas in the country in which great enthusiasm was generated shortly after World War II for the establishment of so-called Cancer Detection Centers. From some of these detection centers have come exaggerated and unrealistic reports of their success in "cancer detection," simply because their activities have not been limited to the examination of apparently well individuals. In many localities the previous enthusiasm for Cancer Detection Centers has sharply diminished or even completely disappeared, for reasons which will be made apparent later. It is our intention here to examine critically the concept of cancer detection procedures, both from a scientific and philosophical viewpoint, and to attempt an appraisal of the real value of the procedure. An effort will be made to estimate the potential reduction in mortality and morbidity from cancer if systematic and meticulous cancer detection surveys were possible in any significant fraction of the population.

During the early part of this century tuberculosis was the second ranking cause of death in the United States, and a major influence in the reduction of tuberculosis to its present minor importance as a cause of death has been that of intensive programs of case finding or tuberculosis detection. Now cancer is the second most frequent cause of death and, although the mortality rates are beginning to show a downward trend in some forms of cancer for the first time in this century, the rates of incidence and prevalence of most forms of the disease are still on the increase. The problems of case finding in cancer are much more complex than in tuberculosis. In the latter disease the single objective was to focus attention on one area of the body and to employ a technic, the chest X-ray, which proved itself readily adaptable to mass screening procedures. Further, tuberculosis is a contagious disease usually of considerable chronicity, and the detection of infected individuals and their removal from healthy contacts further lower the incidence of the disease. Cancer is a large group of diseases of highly disparate natural history occurring in almost every possible anatomical site. Some cancers occur in readily detectable or accessible sites, while others develop silently silently in some visceral sites in such a fashion that their detection is impossible at any early stage even with the most elaborate radiographic and laboratory studies.

A fundamental weakness apparent in the work of all the cancer detection centers is that the majority of their clients, up to 95%, never return for a second survey. In only a very few of these centers do any significant fraction of the examinees adopt a regular practice of periodic examination. The average client of a cancer detection center is thus seen at a single fleeting instant of his life span, at which time, with the average

*From the Department of Surgery, School of Medicine, University of Southern California.
Read before Arizona Medical Association Annual Convention, Phoenix, Arizona, April 30, 1952.

sort of detection examination, there will be something less than an even chance of an examiner detecting a silent cancer even if the examinee is harboring a malignant neoplasm. The psychological implications are two-fold: many individuals develop a false sense of security as a result of being exposed to a single survey and second, the average citizen is resistant to the idea of anything so simple as periodic health examinations. The main barriers to securing cooperation are not economic, but the time and trouble involved and the frequency with which the individual chronically neglects health surveys on the basis of "this can't happen to me." The validity of these assumptions is endorsed by the small percentage of physicians who themselves have periodic physical surveys, and the fact that in several studies the period of delay from the onset of symptoms to treatment of cancer in physicians has been significantly longer than in non-professional patients.

Widely divergent views are now held by many who have studied the problem not only as to the value of cancer detection centers but also of the value of case finding by cancer detection surveys as done by individual physicians. Much of the confusion is due to a failure to recognize a strict definition of the term cancer detection. To quite from the report of the Conference Committee on this subject for Connecticut: "It is of the utmost importance that agreement be obtained on some definition of the term and that this definition be adhered to, otherwise discussion is futile, evaluation inaccurate, decision difficult and the use of the scientific experimental method impossible." The original concept of cancer detection is the discovery of precancerous lesions and early cancer in patients who have no signs of symptoms. Some of these cancers, when detected during their silent stage offer a much better prospect for real cures than after symptoms or signs appear. Cancer detection programs are not intended for the diagnosis of cancer in people who are already sick and have signs and symptoms. However, some people may consider themselves well and yet have signs or symptoms of cancer which are apparent to a physician. For this reason the point of view of the patient, rather than that of the physician, should be adopted as a criterion.

Some enthusiasts have proposed the development of a so-called ideal examination for cancer detection with mass application of radiographic and laboratory screening procedures. It is obvious that neither the personnel nor the facilities will ever be available to provide any such complex examinations for any significant fraction of the population. Further, as the examination becomes more elaborate the yield in cancers found correspondingly diminishes. Remembering that only a certain fraction of cancers are detectable with any means which we now have, extension of the cancer detection procedure beyond certain basic requirements leads to an area of rapidly diminishing returns. In fact, cancer detection examinations can never be more than a valuable adjunct in a cancer control program. The main reliance must remain on early recognition of symptoms by the patient and prompt diagnosis by the physician. Progress in these phases of cancer control are dependent entirely upon our continued efforts in education, both for ourselves, and for the more than one million citizens who will develop cancer in this country during the next ten years.

There are few reliable statistics to indicate the number of cancers or precancerous lesions which are found with a standard examination in apparently well people. A yield of less than 0.2% appears to be a fair estimate for a minimum standard examination in people over forty years of age. If the examination is limited strictly to people without signs or symptoms it is probable that the yield is closer to 0.1%. It should be remembered, however, that these figures, as has been suggested above, represent mainly individuals who have been exposed to one or two, and rarely more than three examinations, and that the fraction in whom repeated annual or semi-annual examinations is done over a period of ten or more years should eventually develop a yield of about 5%. This estimate is based on the fact that one out of eight individuals over 40 years of age is destined to develop cancer, and that out of this 12% almost one-half or about 5% will develop early objective evidence of cancer in accessible sites at a time when the lesion is still silent. Support for these estimates comes from the report of Cliffton and Rush concerning the work of the Detection Clinic in New Haven (Yale University School of Medicine). Of 1,000 examinees originally seen, one-year follow-up was obtained in 977, and two-year data on only 389. From the original 1,000 subjects a true detection yield of 0.7% cancers

was obtained. For the 977 followed for one year, an identical additional yield of 0.7% cancer detection occurred in the next 12 months, but for the 389 individuals seen during a second year the yield increased impressively to 2.3%. It seems proper to conclude then that the rather indiscriminate sampling of the population found in most cancer detection centers is of little value, but that a minimum cancer detection examination of apparently well people by a large number of physicians on a large selected segment of the population over a long period of years would be of very real value.

Another objection to cancer detection centers is that they are alien to the philosophy of medical practice in which most of use believe. Whether we practice as individuals or in a group, even under present conditions which might best be described as free enterprise with limitations, there seems to be no reason why our patients should have recourse for periodic examinations for any purpose to an anonymous group with presumably limited interests. The strength of the staff of a cancer detection center must be measured in terms of its most incompetent member. The detection center plan is discriminatory on a geographic basis for its benefits are largely confined to urban areas. A final weakness in a detection center idea is that a cancer detection survey is equally valuable in the discovery of a variety of other diseases and incipient pathologic processes unrelated to cancer. If the detection center idea is carried to its illogical extreme, there would be detection centers for diabetes, glaucoma, and myriad other diseases, in many of which, incidentally, detection techniques would be more effective than they are in neoplastic diesases. The sole value of cancer detection centers is in the further testing and development of screening techniques for the discovery of silent cancer. Such work will be done best in a few highly developed centers where the follow-up is maintained at the highest possible level.

Our conviction is, then, that cancer detection surveys belong in the physician's office. We believe also that the stimulus provided by education of the public toward periodic health surveys should be regarded as a useful lever to encourage the detection of disease in general, while placing emphasis on the value of the cancer detection phase of the program. If we are to accept and emphasize to the public the value of this program in terms of cancer detection, it is then up to us to establish the availability of a sufficient number of physicians interested in, and qualified to do, a cancer detection examination, and to see that their services are made available to the public. The slogan "every physician's office a cancer detection center" is unrealistic and impractical since all physicians obviously do not have equal interest, time or qualifications. Otolaryngologists and psychiathists, for example, and with no intent to be discriminatory, are certainly not interested in, even if qualified to do, cancer detection examinations. Many of us, however, who are interested or specializing in a given field would do well to make some effort to put the human body back into a psychobiologic unit, as a broad basis on which to build further our specialized interests. One must grant that the expanding horizons in the ares and sciences of medicine, and the more complicated technics now available, have largely developed around specialization. One also recognizes that it would be futile as well as undesirable to reverse this trend. In practical terms, however, a specialist in gynecology and obstetrics may frequently find items of considerable importance, and even of relevance to pelvic pathology, when his attention wanders above the level of the umbelicus. So it should be entirely proper and even desirable for such a specialist, as well as others whose interests may lie predominantly in other anatomical areas, to interest themselves in cancer detection examinations.

In general, of course, the main burden of periodic health surveys will fall on the shoulders of those in general practice, on internists and general surgeons. The county medical society has an important function to perform in this respect, usually through its cancer committee. A poll of the members of the county medical association should be obtained to set up a roster of physicians who are interested in cancer detection and periodic health surveys. One of the major obstacles at present is that the public has no means of knowing which physicians are interested. In as much as the American Cancer Society through its educational work is constantly receiving inquiries on this subject, it seems reasonable that the Society and its information centers should be provided with a list of these interested physicians in each geographic area. The function of the American Cancer Society, or any other volun-

tary organization, should be not the maintenance, but the demonstration of the need, the education of the public to its value, and in its function in bringing the prospective examinee and the doctor together. Economic considerations should be worked out by the county medical society with the panel of physicians so that no individual will be denied the benefits of the standard cancer detection examination.

The county medical society and its cancer committee must go considerably further than the mere listing of a panel of physicians who have expressed their willingness to do cancer detection examinations. The problem of what constitutes a satisfactory standard or minimum detection examination is something that should engage our attention, and in each instance local decision should be made as to the desirable features of such an examination. Each of the psysicians on the panel who are going to become cancer detectors should be furnished with information concerning the minimum standards which have been adopted, and each physician should accept such standards as a minimum with such aditions and elaborations as his own interests may dictate. An admirable study of this subject has been published by the Cancer Coordinating Committee of the Connecticut State Medical Society, and in Table I is seen the ten points recommended for an adequate cancer detection examinaiton. It is emphasized that these requirements are the absolute minimum which can be expected to produce a satisfactory yield of cancer of accessible sites, and represent actually less in the way of examination than that which is carried out by a physician who performs careful routine or annual physical examinations. It is not anticipated that these examiners will do less than they have been doing, but rather that those whose examinations do not include these points will see that they are added. Physicians to whom the problem of preventive medicine in the early detection of all types of chronic disease represents a challenge, will naturally broaden the examination in accordance with their time, facilities and particular interest.

This sort of minimum examination was that used in a survey in 1948 and 1949 by the American Cancer Society. This experience involved 51,728 examinations in which 406 proved cases of cancer were detected, or a yield of 0.7%. It should be remembered this figure of 0.7% discovery included figures from some detection centers where examinations were not restricted to well individuals. Analysis shows that 87% of the cancers detected would have been discovered by examination of the anatomical sites indicated in Table I. An additional percentage, some 5 to 6% would have been uncovered by the use of atest for blood in the stool. Since a simple office method for performing the most reliable test of this type, the Guaiac Test, is available it seems logical to add this as the sole laboratory procedure which would be the greatest help with the least additional effort, expense and equipment.

TABLE I

Points Covered In A
Cancer Detection Examination
from
Connecticut Conference Committee
on Cancer Detection

1. Skin
2. Lips and buccal cavity
3. Thyroid gland
4. Female breast
5. Abdomen
6. Female pelvis
7. Male genitalia
8. Rectum and prostate
9. Lymph nodes which are accessible
10. Stool examination for blood

From the standpoint of cancer detection alone, as one is dealing with a person who is presumably well, the formal taking of the history, a time consuming procedure, is not productive enough to warrant its inclusion. Routine blood counts seem to offer no value in cancer detection examinations, for only one examinee in many thousands will have an unsuspected leukemia, for which we have only palliative measures at best. The presence of anemia of moderate degree is entirely nonspecific and in fact the recording of hemaglobin limits within normal in the presence of advanced cancer is commonplace.

Routine urinalysis is also of so little value as to be an unproductive phase of a cancer detection examination. Only catheterized specimens are of value in which the microscopic findings of red blood cells would only indicate about 2% of unsuspected cancers in the urinary tract, and again these inaccessible cancers are rarely cur-

able. Papanicolaou smears also are unsatisfactory when done on urinary sediments.

Although the findings of Overholt indicate that carcinoma of the lung is more frequently surgically resectable when discovered in a silent phase by roentgenographic examination of the chest, it is of no value on a mass basis unless repeated every six months. Mass X-ray surveys of the chest have indicated that the yield of primary cancer of the lung will be only 10 in every hundred thousand persons examined. This is an incredibly small number when the expense involved is considered.

The use of exfoliative cytology in the study of vaginal secretions for the detection of early cancer has not gained wide popularity as an office procedure. The reasons for this are twofold: one is that the availiability of trained personnel capable of staining, preparing and interpreting these smears is entirely inadequate for their widespread use. It seems unlikely that any possibility of extending this service as a mass screening device will be possible for many years to come. A second barrier is the relatively high percentage of false positive and negative reports obtained, particularly when the smears are interpreted by any but the most competent cytologists, for whom it is a time consuming procedure. When used as a screening mechanism on 1,319 asymptomatic volunteers by Macfarlane and her associates only three cases of cancer of the cervix were discovered, an incidence of 0.2%. Exfoliative cytology is of great value in the patient with symptoms, and is helping the pathologist to study further the problem of preinvasive carcinoma of the cervix, and it may be employed as well with some profit by the physician who is particularly interested in the method. It cannot be recommended as part of the irreducible minimum of examination for cancer detection.

Proctoscopic examination, although not listed as part of the standard examination here, is strongly recommended since almost 70% of all cancers of the colon, rectum and anus are within reach of combined examination by digital, anoscopic and protoscopic procedures. The high incidence of polyps, both benign and malignant, in apparently well persons is such that it seems to us that every doctor who becomes interested in cancer detection procedures should acquire experience in proctoscopic examination through its constant use.

Over 90% of all new cases of cancer ocure in the 35% of our population which is over 40 years of age, and thus the greatest yield will be derived from encouraging persons in this age group to seek regular periodic examinations. One should not discourage younger individuals from having such examinations, particularly those with certain forms of cancer in their family background.

Having considered the methodology of cancer detection examinations it would now seem proper to consider current trends of cancer in the population, and to attempt to measure the potential value of cancer detection procedures against these trends. For this purpose we nced to consider not only deaths from cancer, but the occurrence of cancer in the population, or what may be termed cancer illness. For this purpose a recent survey of cancer illness among the reisdents of Denver, Colorado, by the U. S. Public Health Service will be representative of the problem in a given geographic area. In Figue I is shown the percentage change in cancer incidence, cancer prevalence and cancer mortality from 1939 to 1947, by sex. Cancer incidence is defined as the number of new cases occuring annually, while cancer prevalence indicates the incidence, plus those cases under treatment during the study year but diagnosed in a prior year. It will be seen that in the Denver area there was a sharp increase in the incidence of cancer from 1939 to 1947 for both sexes, but a consideraly greater increase for males. The prevalence figures followed the same pattern. Cancer mortality for both sexes combined decreased 3% in this 8 year period, but the decrease was registered by the females while the malse had a 19% increase in cancer mortality. The same pattern is evident in the U. S. generally during recent years, and in part the decrease in cancer mortality among women is due to the fact that they develop a larger percentage of cancer in accessible sites. Figue II shows the number of new cases of cancer in this area for 1947 according to anatomical sites, the major sites of origin being in the digestive system, skin, genital organs, breast and respiratory system. From the standpoint of cancer detection surveys, the sites of importance are the skin, genital organs, breasts and buccal cavity and pharynx. The main factor in the curability of cancer is whether or not the process is localized at the time of treatment and Figure 3 indicates, by

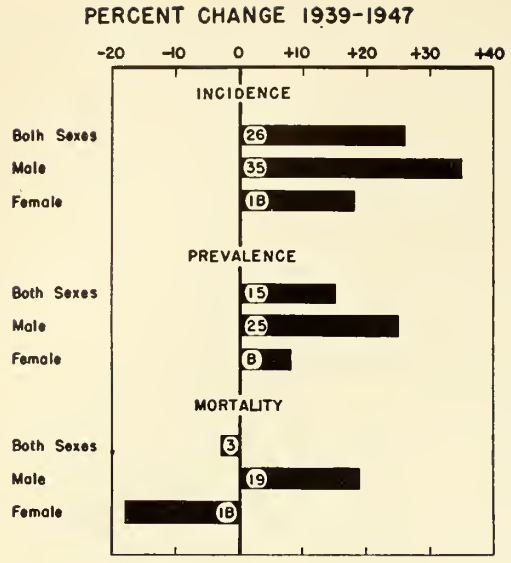


Figure 1.—Percent change 1939-1947, Incidence, Prevalence and Morbidity of Cancer, Denver area.

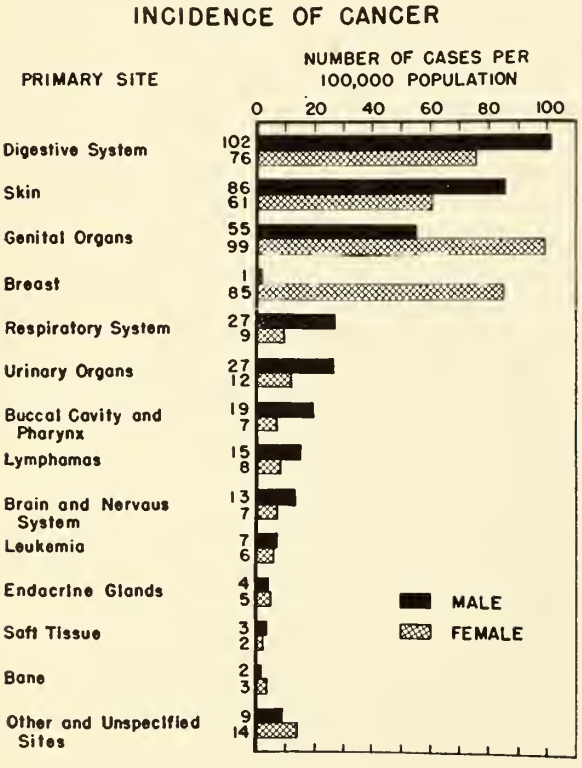


Figure 2.—Incidence of Cancer by Primary Site and Sex, 1947, Denver area.

site and sex, the cancers which were localized at the time of diagnosis. From a practical standpoint the high percentage of localized cancers in the skin and buccal cavity are important considerations and, to a lesser extent ,the 50-60% of cancer primary in the genital organs with

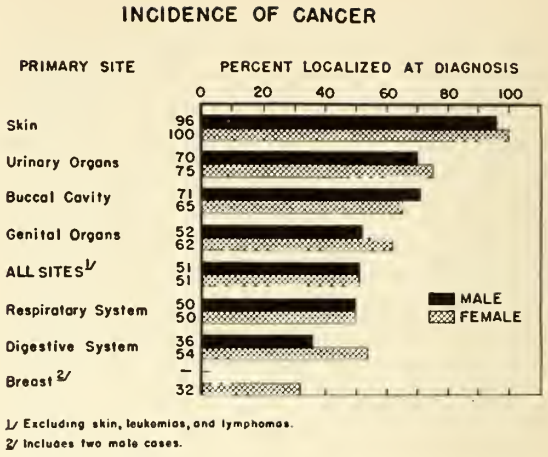


Figure 3.—Percent of Cancer Localized at Time of Diagnosis, by Sex, 1947, Denver area.

localization at time of diagnosis is encouraging. Our failure to achieve any better control of carcinoma of the breast is illustrated by the fact that in this survey only 32% of breast cancers were localized at the time of diagnosis. As a corollary to this, Figure 4 shows the percent of patients surviving 12 months after the diagnosis has been made in cancer originating in various organs. In general this one-year survival pattern goes hand in hand with the tendency of individual cancers to metastasize early or late as the case may be. However, the natural history of cancer of the breast is illustrated in the high percentage of women surviving at least one year after diagnosis, for even though the eventual absolute cure rate for cancer of the breast is not more than 20%, 40% of untreated cases survive thre years or more.

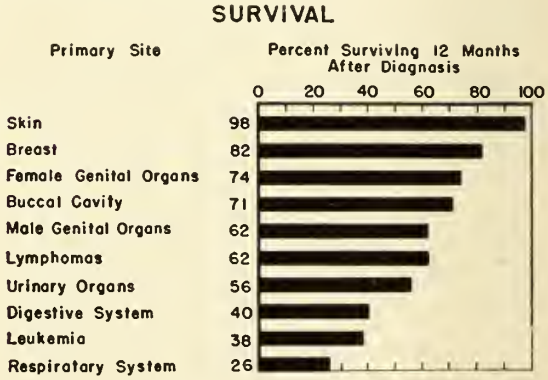


Figure 4.—Percent Survival for 12 Months, by Primary Site, 1947, Denver area.

In Table II are indicated the percentage of cancer deaths in Arizona from primary sites which may be classified as readily accessible.

A total of 21.9% of all cancer deaths for Arizona in 1945 were those primary in buccal cavity and pharynx, uterine cervix, breast and skin. Some additional accessible sites not obtainable in the available statistics for Arizona would raise this figure to approximately 30%. In Table III from the statistics available are shown the deaths from inaccessible sites for Arizona in the same year, amounting to 68.6%.

TABLE II

Percentage Arizona Cancer Deaths, Accessible Sites – 1945

Buccal Cavity & Pharynx	1.8%
Uterus	11.8
Breast	6.1
Skin (except vulva & scrotum)	2.2
Total Accessible Sites	21.9

TABLE III

Percentage Arizona Cancer Deaths, Inaccessible Sites – 1945

Digestive Organs & Peritoneum	46.1%
Respiratory System	8.9
Genital Organs other than Uterus	7.9
Urinary Organs	4.5
Brain and Central Nervous System	1.2
Total Inaccessible Sites	68.6

As indicated previously, the staistical picture of cancer mortality is far from being a true representation of cancer as it is seen by the clinician, and it is more pertinent for our purposes to consider admissions to an institution for diagnosis and treatment of cancer. In Table IV are shown the number of admisisons for cancer considered to be in readily accessible sites for the Los Angeles County Hospital from 1942 to 1946 inclusive. In the male the sites of importance from the standpoint of hopeful prognosis are those of the skin, larynx, lip and oral cavity, and in the female the uterine cervix, skin and to a lesser extent the breast. The inaccessible sites for the same years are indicated in Table V and the greater number of cancers in these sites in the male, with only a small increase for inaccessible sites in the female, sheds further light on the failure of cancer mortality rates to yield in the male. These figures for the Los Angeles County Hospital are shown in graphic form in Figure 5 for both sexes, with 42% of all diagnosed cancers being in accessible sites.

TABLE IV

Average Yearly Admissions Accessible Sites of Cancer, Los Angeles County Hospital 1942-1946, inclusive

	Male	Female
Uterine Cervix		116
Breast		113
Skin (inc. nose & ear)	75	30
Prostrate	105	
Larynx	18	1
Lower Lip	15	1
Tongue	7	2
Total Accessible	220	263

TABLE V

Average Yearly Admissions Inaccessible Sites of Cancer, Los Angeles County Hospital, 1942-1946, inclusive

	Male	Female
G. I. Tract	192	115
G. U. System	49	78
Lung	81	16
Pancreas, Gall Bladder Liver	38	29
Lymphoblastoma	44	29
Central Nervous System	17	15
Total Inaccessible Sites	421	282

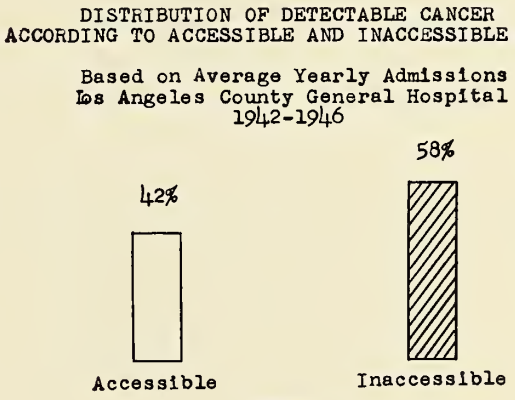


Figure 5.

Realizing that almost 70% of all cancers of the colon are within reach of the finger, anoscope or proctoscope, and assuming that this group of patients could have had the benefit not only of minimum physical examination, but also the use of the anoscope and proctoscope, Figure 5A indicates that 59% of the diagnosed cancers would have become detectable by inclusion of such procedures. Further, the great majority of all carcinomas of the gastro-intestinal tube, at least from the termination of the esophagus to the anus, produce some degree of bleeding into the intestinal tract and Figue 5B indicates

that with the addition of a chemical test for blood a total of 64% of patients will come into what one may term an artificially accessible group of cancers, leaving only 36% which are truly inaccessible in a diagnostic fashion.

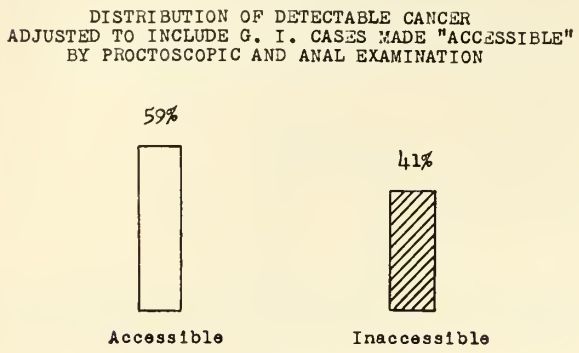


Figure 5A.

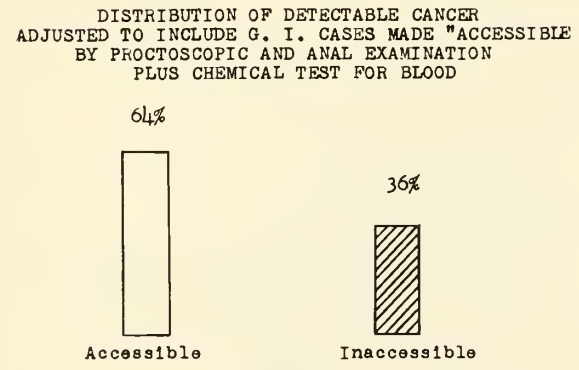


Figure 5B.

This gives us the opportunity to indulge in some theoretical calculation as to what sort of impact a cancer detection examination which includs proctoscopic examination and chemical testing of the stool for blood would produce in a segment of the population which submitted regularly to such detection procedures. In Table VI are shown the percentage of cancer mortality due to lesions primary in six anatomical sites in the female. These combined sites account for 42.4% of all cancer deaths. Assuming the sort of cancer detection examination just described, and assuming effective treatment at an early stage because of discovery of these lesions while still in a silent phase, and accepting average reported 5-year cure rates in such early lesions, the mortality should be reduced to the extent shown in the right hand column. This theoretical reduction in death rates from cancer for the female would be that from 42.4 to 22.97%, or a reduction in cancer mortality arising in accessible sites of almost 50%.

TABLE VI

Calculated possible reduction in mortality rates for cancers in females made "accessible" by standard examination plus proctoscopic examination

Accessible Sites	Female Deaths	
Site	Mortality %	Rx at Early Stage Calculated %
Buccal Cavity	1.4	0.39
Rectum, anus	4.3	2.58
Larynx	0.2	0.04
Uterine cervix	16.6	4.16
Breast	18.9	15.20
Skin	1.0	0.60
Total	42.4	22.97

TABLE VII

Calculated possible reduction in mortality rates for males

Accessible Sites	Male Deaths	
Site	Mortality %	Rx at Early Stage Calculated %
Buccal Cavity	5.0	2.10
Rectum, anus	8.2	4.92
Larynx	2.0	0.40
Prostate	13.7	12.40
Skin	1.7	1.00
Total	30.6	20.82

TABLE VIII

Variability of Incidence and Mortality

Site	Cases %	Deaths %
Lip	6.3	0.5
Stomach	12.0	22.8
Uterus	19.4	18.5
Breast	27.9	19.9
Skin	20.6	1.7

A similar theoretical predicated reduction in mortality for the male is not as encouraging. Only 30.6% of al lcancer deaths in the male are accounted for by these accessible sites, and the application of cancer detection methods would produce a reduction in mortality to 20.82% or a reduction of one-third of cancer mortality from lesions beginning in accessible sites.

There is one further consideration in the value of cancer detection examinations, which is based on the biological variability of certain forms of cancer. This is well illustrated in Table VIII showing the disparity in reported incidence and mortality in cancer of five separate anatomical sites. An outstanding example of a form of cancer which is readily curable and is in general

late to metastasize is that of the lip, where the reported incidence is 6.3% but the mortality rate is only 0.5% of all cancer deaths. This is in line with the known fact that 80% or more cancer of the lip is curable by effective treatment. Even more illustrative of a curable form of cancer is that of the skin where the reported incidence rate in this series was 20.6%, while the mortality was only 1.7%, and that largely due to the biologically unfavorable minor fraction of cancer of the skin made up of melanomas. In contrast to this is the score from cancer of the stomach where the reported incidence was only 12% but the percentage of all cancer deaths from gastric cancer was almost twice as much or 22%. This is a reflection of a biologically unfavorable form of cancer where in many patients the diagnosis is not made until the terminal phase of the illness is reached or indeed the diagnosis may only be made at autopsy. The truth is that under the best possible circumstances less than 3% of all cases of gastric cancer admitted to any institution survive for five years or more. The cancers of the uterus are almost equal in incidence and mortality and yet this form of cancer which we know now arises in a preinvasive lesion which persists as such for five or more years before becoming clinical, invasive cancer, and the possibility for almost complete control of uterine cervix cancer by periodic detection examination is unequalled in any other major form of cancer. In fact the natural history of the long dilatory period of preinvasive or *in situ* carcinoma of the cervix is such that routine meticulous examination of the cervix at intervals of three years, with the use of multiple four quadrant biopsies and Papanicolauo smears, could result in almost uniform elimination of this form of cancer before it ever got a start as an invasive process. Mammary carcinoma lies midway between gastric and uterine cancer as to its biological potential, and the case incidence exceeds the mortality rate because of the long natural history of this disease. However, there is an appreciable fraction of cancer of the breast which remains localized for periods of time up to three years, and in this fraction of women with breast cancer of about 20 to 25%, the detection of a tumor in the breast followed by radical treatment will be curative and contribute substantially to further control of this form of cancer.

CONCLUSIONS

1. Cancer detection, limited to asymptomatic individuals, can be of distinct value as an adjunct phase of a cancer control program.
2. Its value is in the discovery of certain accessible cancers during their silent phase, thus bringing to definitive treatment a larger number of biologically favorable lesions while still limited to their anatomical sites of origin.
3. More cancers will be discovered by the widespread use of a minimum, or standard, type of examination, than by the restricted use of a more elaborate examination.
4. Detection centers as currently operated contribute little directly to education, lay or professional, and render a minimum service because of the small number of examinees and their failure to continue periodic examination. A limited number of well-organized detection centers are of value in the further study of screening mechanisms for more efficient detection of silent cancers.
5. Cancer detection surveys are best done by interested physicians as part of office practice.
6. The county medical society should function to bring the public and the interested physicians together, by maintaining rosters of qualified, interested physicians, made available to local units of the American Cancer Society and its information centers.
7. By regular examination of a given segment of the population over a period of ten years, the cumulative yield of cancers discovered should approach 5%, compared to about 0.2% in most detection centers.
8. About 42% of all cancers are accessible by a minimum of physical examination.
9. With the addition of proctoscopic examination and chemical testing of the stool for blood, more than 60% of cancers can become "accessible."
10. Uniform application of this more adequate survey could produce, by calculation, a decrease of 20% in cancer mortality in women, and a 10% reduction in men.
11. Cancer detection should be a phase of general, periodic, health surveys.

REFERENCES

1. Cliffton, E. E. and Rush, Benjamin, Jr. The cancer detection center; its effectiveness an dits role in the control of cancer, as determined by a follow-up study of 1000 patients. Surg., Gyn. & Obst. 93: 719-726, Dec. 1951.
2. Conference Comm. (Oughterson, A. W., Chairman) Cancer detection. Conn. State Med. J. 14: 436-440, May, 1950.
3. Guiss, L. W. Chest tumor registry of lung cancer suspects from the Los Angeles County Mass Chest X-ray Survey. Cal. Bull. Canc. Control. 7: 3-4 March, 1952.

4. Macfarlane, C., Sturgis, M. D. and Fetterman, F. J. Control of cancer of the uterus. JAMA 138: 941-942, Nov. 27, 1948.
5. Nealon, T. F. Survey of 96 detection centers in the United States. Proceedings of the Conference on Cancer Detection, American Cancer Society, Sept. 1949.
6. Ryan, A. J. The minimal requirements for a cancer detection examination. Conn State Med. J. 14: 441-443, May, 1950.
7. Marcus, S. C. Cancer illness among residents of Denver, Colorado. U. S. Public Health Service, Publication No. 112, Cancer Morbidity Series No. 4, 1951.

SUPERIOR VENA CAVA OBSTRUCTION IN PRIMARY CANCER OF THE LUNG

Bernard M. Lipschultz, M.D.
Veterans Administration Hospital
Phoenix, Arizona

The increasing incidence of bronchogenic carcinoma together with improved techniques of angiography, phlebography, venous pressure and circulation time studies, has stimulated renewed interest in superior vena caval obstruction. Since William Hunter's original description in 1757 of this syndrome caused by syphilitic aneurysms of the thoracic aorta compressing and obstructing the superior vena cava numerous reports have accumulated in medical literature concerning this subject. By 1904, Fischer(3), in Germany, had collected 252 cases from the literature, 226 cases confirmed by autopsy. McIntyre and Sykes(2), in 1949, comprehensively reviewed the literature through 1946, which included two of their own personal cases, totaling 524 cases. Of their personal series accumulated through medical literature between 1904 and 1946 (representing 250 cases), 74 were of primary thoracic tumors causing superior vena caval obstruction. This represents 29.6% of their total. However, of these 74 primary thoracic tumors, 22 were primary malignant tumors of the lungs and bronchi, thus representing 8.8% of all cases of superior vena caval obstruction. Since then there has been an increasing number of clinical and pathological reports on this syndrome.

The following two case reports are on two patients with superior vena caval obstruction which we have followed in the past year.

CASE NO. 1

A 46 year old white male admitted 8-13-1951, with symptoms of two months' duration of gradual appearance of dilated veins on the anterior chest wall. One month prior to admission he developed right mid-chest pains and hemoptysis. On admission he appeared chronically ill with edema about face, distended neck veins and prominent distended veins of the chest and abdomen, with blood flow directed downward. He had mild clubbing of the fingers and toes. X-ray of the chest (Figure 1) revealed a mass in the anterior-superior mediastinum, displacing the upper esophagus to the left. Venous pressure studies revealed a venous pressure of 380 mm. of water and decholin circulation time of 35 seconds.

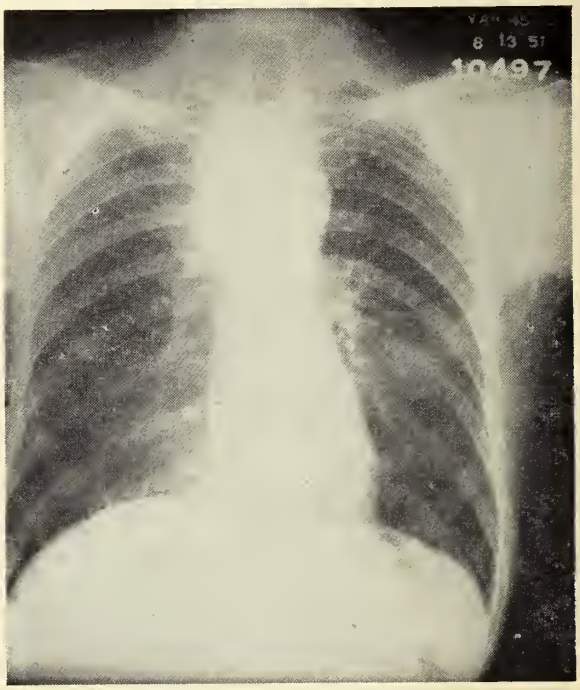


Figure No. 1. Case No. 1—Showing tumor mass in superior mediastinum.

Angiogram (phlebogram) (Figure 2) revealed a complete obstruction at the site of the tumor mass, with extensive network of collateral circulation about the shoulder girdles, and involving parasternal veins and internal mammary veins collateralizing with the azygos vein.

On 8-17-1951 bronchoscopy revealed a mass compressing the right side of the trachea just above its bifurcation. This was considered to be originating from the first portion of the right upper lobe bronchus. Biopsied specimen revealed this tissue to be a Grade IV adenocarcinoma.

The lesion was considered non-resectable and patient was thereupon given a course of nitro-



Figure No. 2, Case No. 1—Angiogram revealing complete obstruction at the site of tumor mass with extensive net-work of collateral circulation about shoulder girdle and neck.

gen mustard. This therapy resulted in some palliative relief of his chest pain and cough, but no improvement in his superior vena caval obstruction. This was followed by an intensive course of deep x-ray therapy which also failed to relieve the obstruction. Patient is still alive, fairly comfortable now 6 months since onset of his superior vena caval obstruction.

CASE NO. 2

A 53 year old white male admitted to hospital 4-27-1951 with a 4 months' history of cough, hemoptysis, and one month prior to admission increased exertional dyspnea with nocturnal wheezing. Admission examination revealed a dyspneic, chronically ill male, with a respiratory lag of right chest, dullness at right base, and coarse wheezing rales over the right chest. X-ray revealed atelectasis of right lower lobe and an infiltrative process in right mid-lung, with suggestion of right upper hilar and mediastinal lymph node enlargement.

Bronchoscopy on 5-2-1951 revealed a constricting lesion of the right stem bronchus at the bifurcation of the middle and lower lobes. Pathological report of the biopsy specimen was reported as chronic inflammatory tissue. The evidence favored a diagnosis of carcinoma, and an exploratory thoracotomy was performed on 6-11-1951 at the VA Hospital, Los Angeles, and an inoperable carcinoma was found invading the pleura, ribs, with extension into the mediastinum, pericardium and superior vena cava. Biopsy of the pleura revealed on microscopic section an undifferentiated carcinoma.

Patient was returned home after postoperative recovery, and shortly developed symptoms of increased pain, dyspnea, edema of face, chest and upper extremities. On readmission 8-9-1951 patient had symptoms of a well advanced superior vena caval obstruction, with a plethoric puffy face, prominent eyeballs, distended neck veins and marked collateral circulation involving the anterior chest wall. Venous pressure in both arms was 350 mm. of water; the decholin circulation time was over 45 seconds, no definite end point.

A course of nitrogen mustard, totaling 30 mgm. over a 4 days' period was then given patient, and on the third day after treatment all signs of superior vena caval obstruction disappeared, with a now normal venous pressure of 115 mm. of water and a decholin circulation time of 15 seconds. Angiogram (phlebogram) revealed diodrast throughout the entire course of the superior vena cava at this stage. Patient remained free of symptoms for approximately 4 weeks and thereupon the former signs and symptoms of superior vena caval obstruction reappeared. He deteriorated rapidly from then on, expiring November 8, 1951, 3 months after symptoms of complete superior vena caval obstruction had appeared.

Post mortem examination confirmed the clinical diagnosis and course. The right main stem bronchus involvement had spread to the right upper lobe. The superior vena cava was completely obstructed by tumor mass and lymph nodes, but there was no malignant infiltration of the walls of the superior vena cava. Obstructive pneumonitis was also present in the pathological specimen.

DISCUSSION:

Jaffe(4), in analyzing 100 autopsied cases of carcinoma of the lung, discovered invasion and obliteration of the superior vena cava by the tumor in 7 (6%). The actual increase in incidence of bronchogenic carcinoma, as authentically reported by Doll and Hill(5), British statisticians, (fifteen-fold increase from 612 cases to 9,287 in England and Wales between 1922 and 1947), was already presumptive evidence that pulmonary cancer would be reflected in a pro-

portionated increase of superior vena caval obstruction. Although final statistics are not complete, Graham in this country(6), in reviewing the vital statistics in the annual death rate due to cancer of the lungs or pleura, already has shown an eight-fold increase in the 21 years between 1914 and 1935 and anticipates a comparable increase to Doll and Hill's figures after 1935.

Already, since McIntyre and Sykes' classical review of the superior vena caval syndrome(2), we have collected, besides the two presented cases, 29 additional cases of superior vena caval obstruction. These include cases by Klassen(12), McCord(8), Kahn(10) and McGregor(11). Of the 31 cases reviewed, including our own, 13 were due to bronchogenic carcinoma. Although the series is relatively small, it represents an increase from 8.8% to 42%, compared to McIntyre and Sykes' studies. Whereas, formerly, chronic mediastinitis and aortic aneurysms accounted for 65% of all cases of superior vena cava obstruction, (syphilis being the etiologic factor in 35% of entire group to date) the more adequate control of syphilis and tuberculosis has already been reflected in a decreased incidence of superior vena caval obstruction due to these causes. Bronchogenic carcinoma thus is considered as the most probable etiological agent today, due to the aforementioned increased incidence of this disease in general. There are undoubtedly scattered hidden cases in the literature, but allowing for unreported cases, these figures are still considered significant.

Symptomatology of this syndrome is often overshadowed by the predominant symptoms of pulmonary cancer, such as a new cough or changing character of an old cough, chest pain, hemoptysis and weight loss. Once symptoms of superior vena caval obstruction start, other pathognomonic signs appear, consisting of edema of face, neck or upper extremities with neck vein distention, venous hypertension in the arms and the development of subsequent varicosities of the anterior thorax. However, as demonstrated in Case No. 1, manifestations of superior vena caval obstruction appeared prior to the more common symptoms ordinarily experienced in primary cancer of the lung. Pre-existing dyspnea is accentuated with onset of symptoms, as noted in Case No. 2. Headache, fullness in head and ears, mental lethargy, are common side complaints. Jacksonian epilepsy is uncommon, but may occur when collateral circulation is slow in appearing and venous return from the cerebrum is retarded. Chronic congestion of cerebral tissues results in increased intracranial pressure. Conjunctival edema may be quite severe.

Early evidence of collateral circulation is manifested by telangiectasia along the anterior costochondral margins and may be the first sign of this syndrome. As collateral circulation becomes more extensive venous distention appears in the lateral and posterior chest wall and the upper and lower abdominal wall. The superior vena caval system possesses four tributaries which carry the main burden with shunting of blood towards the heart around an obstruction. All are interconnected and concerned in collateral pathways, irrespective of whether the obstruction is above, below, or involves the vena azygos orifice. These include:

1. The internal mammary route, anastomosing with the superior and inferior epigastric route.
2. Vertebral route, draining partly into the internal mammary and azygos routes.
3. Azygos route, which includes the hemiazygos vein.
4. Lateral thoracic route, anastomosing with thoraco, epigastric and superficial circumflex iliac, their contained blood emptying into the femoral vein via the long saphenous vein.

Angiography will demonstrate in most instances the site of obstruction and collateral venous pathways. Although in our angiographic studies 70% diodrast was used, according to Dotter and Steinberg(14) dilute solutions of diodrast (35% to 50%) are effective as a contrast media, used in amounts varying from 25 to 30 cc. Where abdominal wall collateral flow is not marked, infra-red photography may assist in visualizing collateral pathways, but this is not essential. Venous pressure and circulation time studies may aid in following the progress from incomplete obstruction or its reversal as seen in Case No. 2, as in the classical phase of complete obstruction they are invariably elevated and prolonged respectively.

Treatment of this type of neoplastic obstruction is purely palliative. Small repeated venesections may relieve some of the discomforting headaches. These cases are all to be considered inoperable. Palliation may be temporarily obtained in a fair number of cases by the usual methods of treatment with nitrogen mustard or deep x-ray therapy. Nitrogen mustard is preferable, as the disease is already complicated by

obstructive vena caval symptoms and if no results are obtained with deep x-ray therapy, the invariable radiation illness adds to the extreme discomfort of these patients. The pathological changes, as demonstrated by Gaensler et al (13), following nitrogen mustard are practically identical with those after ionizing radiation. Undifferentiated types of carcinoma respond more favorably than either squamous cell or adenocarcinoma.

SUMMARY:

1. Two cases of right-sided bronchogenic carcinoma complicated by superior vena cava obstruction have been described.

2. Superior vena caval obstruction may be the first symptom of bronchogenic carcinoma.

3. Review of the literature has revealed a startling increase from 8.8% of cases of superior vena caval obstruction due to pulmonary cancer to a present figure of 42%. This corresponds with the 15-fold incidence of cancer of lung and pleura as shown in England and Wales and probably the United States, as approximately 7% of pulmonary carcinomas will be complicated by this syndrome.

4. Symptomatology and diagnostic criteria for diagnosis have been reviewed.

5. Carcinoma with superior vena cava obstruction indicates inoperability, but palliation with minimal discomfort to patient may be best obtained with nitrogen mustard.

BIBLIOGRAPHY

1. Hunter, William: The History of An Aneurysm of the Aorta with Some Remarks on Aneurysm in General. Medical Observation and Iquiries, 1757, pp. 323-327.
2. McIntyre, Floyd T.; Sykes, Edwin M.: Obstruction of the Superior Vena Cava. Annals of I.M., Vol. 30, 1949. pp. 925-960.
3. Fischer, Julius: Quoted by McIntyre and Sykes.
4. Jaffe, R. H.: Primary Carcinoma of the Lung. J. Lab. & Clin. Med., 1935, XX, pp. 1222-1237.
5. Doll, R.; Hill, A. B.: Smoking and Carcinoma of the Lung. British Med. Jr. 2:739-748, 1950.
6. Graham, Ewarts A.: Some Questions about Bronchogenic Carcinoma. New England Jr. of Med., Vol. 245, 1951, pp. 389-396.
7. Rosenbloom, Stanley: Superior Vena Cava Obstruction in Primary Cancer of the Lungs. Annals of Internal Medicine., Vol. 31, 1949, pp. 470-478.
8. McCord, Malcolm G.: Superior Vena Caval Obstruction. Dis. of the Chest, Vol. XIX, Jan. 1951, pp. 19-27.
9. Ferguson, L. H.; Werne, William A.: Obstruction of Superior Vena Cava. Dis. of the Chest, Vol. XIX, No. 2, Feb. 1951, pp. 234-236.
10. Kahn, G. Mason: The Superior Vena Caval Syndrome. U. S. Armed Forces Med. Jr. Vol. I, pp. 1455-1465, Dec. 1950.
11. McGregor, John B.; Storlfire, Arthur W.: Superior Vena Caval Obstruction. U. S. Armed Forces Med. Jr., Vol. I, No. 6, pp. 648-653. June 1950.
12. Klassen, Karl P.; Andrews, Neil C.; Curtis, George M.: Diagnosis and Treatment of Superior Vena Cava Obstruction. Archives of Surgery, Vol. 63, pp. 311-325. Sept. 1951.
13. Gaensler, Edward A.; McKay, Donald G.; Ware, Paul F.; Lynch, Joseph P.: Cytologic Changes in Bronchogenic Carcinoma Following Treatment with Nitrogen Mustard. Archives of Pathology, Vol. 46, pp. 505-518. Dec. 1948.
14. Dotter, Charles T.; Steinberg, Israel: Angiography. New York, N. Y., Paul B. Hoeber, Inc. 1951.

SURGICAL PATHOLOGY IN EVERYDAY MEDICAL PRACTICE

Osborne A. Brines, M. D.*
Detroit, Michigan

Surgical pathology ordinarily means the examination of tissue removed in the course of an operation and includes operating room consultation and the examination of frozen sections. The pathologist should also consult on the ward and in the clinic, particularly the tumor clinic. In addition to surgical diagnostic procedures which can be performed in the doctor's office, at the bedside or in the patient's home. A histologic or cytologic diagnosis is advisable whenecer possible because it is quite incontravertible. The treatment of any disease is more satisfactory if the diagnosis can be definitely established.

The most useful and popular of such procedures is the formal biopsy. Biopsy means literally "to look at life" but its practical definition is the excision of a small but representative portion of a lesion for diagnostic purposes. The use of such terms as "excision" or "therapeutic" biopsy is to be discouraged.

Skin lesions, suspiciously inflammatory or neoplatsic, lend themselves ideally to biopsy. It is preferable to include a small portion of surrounding normal skin in the excised specimen. Surgical diathermia is to be condemned for such procedures. Crushing of the tissue is to be avoided and immediate immersion in fixative is imperative. The pathologist should be given complete clinical information; this will not prejudice him but will enable him to render a more intelligent opinion.

Masses of the soft somatic tissues can be biopsied advantageously, as can skeletal muscle and lesions of the lip, mouth and cervix uteri. Shallow carcinomas of the lip may be diffuse or multicentric and multiple biopsies are often necessary and should be performed routinely in the case of suspicious lesions of the cervix. The removal of an enlarged lymph node is not, strictly speaking, a biopsy, but it is a valuable diagnostic proceedure. The smallest of several enlarged nodes should not be submitted. Inguinal lymph nodes are frequently unsatisfactory

*Professor of Pathology, Wayne University College of Medicine.
Read before the Annual Meeting of The Arizona Medical Association, Phoenix, Arizona, April 30, 1952.

for histologic diagnosis. A lymph node must be handled carefuly during removal to avoid crushing.

Needle or aspiration biopsy is becoming increasingly important. It is a procedure which has been received both enthusiastisally and with indifference by the medical profession. It is unquestionably a valuable proceedure if done with proper equipment, by an experienced person and evaluated by a competent observer. It can be applied to subcutaneous masses, breast tumors, bone lesions and lymph nodes. Material for microbiologic examinations can be obtained and at the same time solid pieces of tissue can be embedded for sectioning. Otherwise inaccessible tumors can often be reached easily by a needle when excision would be difficult. The valvable of bone marrow aspirations is well known and generally accepted. Thousands of needle biopsies of the liver have been successfully performed as well as other organs including the spleen, kidney and prostate. In the case of aspiration biopsies of the liver, diffuse and finely distributed lesions will be most satisfactorily represented in the material obtained. Those who are opposed to this precedure contend that an exploratory operation and a formal biopsy are prefcrable. Certainly a greater skill in obtaining material and interpreting results can be attained by experience and repetition.

Exfoliative cytology has been popularized during the past few years by Papanicolaou and others but has been applied to the examination of the sediment of pleural and ascitic fluid for tumor cells for years. In this examination an evaluation of individual cells must be substituted for more usual tissue morphology and cell relationships to which the pathologist has been long accustomed. The selection of a stain is optional and varied.

Parenthetically it may be said that all aspirated material may be handled in two ways: the larger pieces embedded in paraffin for sectioning; the fine sediment smeared and appropriately stained. The latter constitutes exfoliative cytology. The foregoing may be applied to the sediment of transudates for tumor cells. It is helpful to carefully examine the fluid and note its physical characteristics. Coagulation must be prevented. Special stained may be employed, e.g., for the demonstration of mucin. A pitfall to be avoided is mistaking large pathological mesothelial cells for tumor cells.

A variation of exfoliative cytology is the preparation of imprints from the cut surfaces of organs such as the spleen and lymph nodes. If blood stains are employed excellent preparations can be obtained. The cells are larger because they are not compressed by surrounding cells and structural detail of cytoplasm and nuclei is such as to make a most satisfactory study easily possible. The hemopathologist especially appreciates the opportunity to study imprints because the cells are comparable to those he sees routinely. Familiarity with this technique convinces one of the limitations of hematoxlin and eosin stained sections for cell identification.

Exfoliative cytology, as generally understood and most often applied, consists of the examination of material from hollow structures or lumens lined by epithelium. There is a wide range of possibilities. The first material to be so examined was vaginal fluid which Papanicolaou had been studying for twenty-five years in connection with hormonal influences. The idea of sampling the vaginal fluid for neoplastic cells was a sound idea because cells so identifiied might represent an area hidden to view, e.g., the endometrium. However, the pipette has given way to the wooden spatula and the proceedure so performed amounts to ascrape biopsy of the cervix. The cervical or vaginal smear lends itself to screening better than to the diagnosis of an individual case. In the cancer detection clinic it leads to the recognition of early cancer which may not be suspected on inspection of the cervix. The positive smear must be substantiated by a biopsy; treatment must be based on a positive biopsy and not on a positive smear. Smears made from material collected with a spatula are cervical, not vaginal, smears. The fact that the cervical smear does not detect all genital tract cancer is not of great practical importance. Probably not more than 5 per cent of cervical cancer will be missed by smear examination. False positives are more frequent and constitute the necessity for verification by biopsy. In nearly 25 per cent of proven cases the smears are reported as suspicious. It is the suspicious smear that is most often disproved by biopsy (40 per cent) as contrasted to positive smears (12 per cent). Much experience and patience are

required. Most important is that at least 25 per cent of the positive smears are in cases of cervical cancer which would not have been detected without the smear.

Examination of other body fluids for cancer cells, including the urine and prostatic secretion, has been attempted. The examination of gastric contents has been disappointing but recently a balloon covered with nylon mesh has been developed which can be swallowed. Peristalsis propels the inflated balloon from the cardia to the plyorus and then it can be pulled back. Adherent material can be picked from the mesh covering, embedded in paraffin and sectioned. Smears of bronchial aspirations and sputum yield a much higher percentage of positive laboratory diagnosis than bronchoscopic biopsies. Sputum, in a minimum of five daily samples, furnishes the best material. Such examinations constitute a valuable adjunct to the early diagnosis of pulmonary cancer. It has been reported that fluid can be expressed frcm the nipples of over half of the women attending cancer detection clinics; this should provide another important diagnostic aid in the field of mammary cancer.

Another technical variation in the field of exfoliative cytology is the spongy biopsy. This depends on the histologic examination of small pieces of tissue particles and cells removed from a mucosal surface or an ulcer by rubbing with a piece of special sponge and then preparing paraffin sections from the sponge in the usual manner. This method has been applied to the diagnosis of cancer of the uterus, bronchi, larynx, rectum, oro-pharynx and stomach. The method has many enthusiastic adherents.

The endometrial biopsy, or the diagnostic dilatation and curettage, is an important diagnostic proceedure if applied intelligently. In addition to the diagnosis of cancer of the corpus uteri it is of great value in arriving at the cause of functional uterine bleeding.

The frozen section should not be omitted from this discussion. Criticized by surgeons and pathologists, it has survived the acid test of time and is today of greater importance than ever in surgical pathology. For the surgeon who is sincerely interested in improving preoperative diagnosis it is indispensible. Conditions must be proper. The pathologist should be forewarned that a frozen section is to be requested and he should be given the opportunity to examine the lesion and the patient's chart if he so desires. He should be present when the specimen is removed. He should examine the specimen and select the block to be frozen. The laboratory technique should be good enough to produce a differentially stained, thin, flat section in two or three minutes. It should be understood that the pathologist not be required to "stretch the evidence" to produce a frozen section diagnosis; he should be accorded the privilege of withholding his opinion until he examines a paraffin section. He should not be expected to classify neoplasms by frozen section but to decide between two or three or, at most a few, possibilities to which the diagnosis has been narrowed. While this is often an operating room procedures it can often be performed in the patient's room or on the ward.

CONCLUSIONS:

This discussion has been to enumerate and describe some relatively simple. yet highly valuable diagnostic procedures which the pathologist and the physician can perform as a team. This type of collaboration often provides an early and a correct diagnosis upon which, and only which, proper and efficient treatment can be predicated.

Some of the procedures which have been discussed are relatively new as compared to histopathology. It must be realized that the more often these procedures are employed the more reliable and accurate they become, the more skillfully material can be secured and the more efficiently the examination can be performed. Patience and experience are essential.

RADIOACTIVE IODINE IN DISEASES OF THE THYROID GLAND*

E. W. Czerny, M.D. and H. D. Cogswell, M.D.
Tucson, Arizona

One of the difficulties encountered in the proper treatment of disorders of the thyroid gland is the technical difficulty of measuring iodine and its metabolism in man. Because of the relative inaccessibility of the gland, it is most difficult to study under physiological conditions. In the past decade I_{131} has made its appearance and has proved to be a notable addition to the armamentarium of the clinical investigator because it allows the use of a physiological quantity of iodine under physiological conditons to test iodine metabolism in thyroid function. To be sure, there are many technical difficulties inherent in it use, but it is of real value in in-vivo measurements.

To review the physiology involved, briefly, inorganic iodide is the form in which iodine is ingested, absorbed and collected by the thyroid. There it is incorporated into the organic iodine of the thyroid hormone. This is the anabolic phase of the gland's metabolism. Then, during the catabolic phase, the thyroid hormone enters the blood and body tissue where it is broken down.

Now, to turn our attention to the fate of ingested inorganic iodine, there are, broadly speaking, only two possible destinations it may reach. A certain percentage of the ingested dose will be taken up by the gland and most of the remainder will be excreted in the urine (a negligible 2% is excreted in the feces). Thus a study of the function of any particular gland can be carried out by determining the ratio of uptake to urinary excretion in the individual case and comparing these figures with the established criteria for normal glands. Prior to the appearance of Iodine I_{131} a reasonable measurement of these factors was impossible.

The absorption of I_{131} has been found to be approximately 5% per minute, being complete in two hours. This has been determined by taking readings over the epigrastrium, the thigh and blood serum readings with the Geiger counter during the absorption stage. The blood level of iodide rises rapidly to a peak which then falls rapidly to a more steady plateau level. As to urinary excretion, it is found that in the normal person about 65% of the ingested dose will appear in the urine in two days, whereas in the hypothyroid individual 80% to 90% appears in four or five days. In hyperthyroid cases, there is a slow tapering plateau over days or even weeks. The remaining factor to be measured is, of course, the percentage uptake in the neck by the thyroid gland itself. Generally speaking, the uptake shows a rapid rise and then a leveling plateau. In the euthryroid patient, there is a steady climb for twenty-four to forty-eight hours to a plateau level of about 20% uptake. In the hyperthyroid individual, there is a rapid climb of six to twelve hours to a plateau of about 45% uptake. Myxedema cases, however, show little or no uptake in the neck. There are exceptions to these generalizations and struma lymphomatosa (Hashimoto's), for instance, frequently gives a normal value as will myxedema occasionally. There is no difference in the percentage values for these various functions regardless of the dose that is administered. Thus a great deal can be learned about a gland by administering a tracer dose of I_{131} and following its progress in and out of the body. A single tracer dose, without a carrier (in the form of some other metal) gives a plateau chart and is a measurement of the synthesis and storage of thyroid hormone, whereas a tracer given with a large carrier gives a hump-back curve that is actually a measurement of the ability of the thyroid to concentrate iodine. All the curves—uptake, urine excretion, and blood levels —are related, depending on thyroid function. It is possible to prove mathematically that the excretion of I_{131} in the urine and its accumulation in the thyroid gland are proportional to its concentration in the blood. Therefore, the disappearance of I_{131} from the blood is a common factor of the various curves.

One question which I am sure presents itself, is about the disposal of I_{131} by tissues other than the thyroid and the kidneys. On the basis of what has been said, it would be logical to expect the per cent uptake and the per cent excretion in the urine in every case to total 100%. This, however, is never the case and the per cent uptake by the thyroid and the per cent excretion

Presented before staff of St. Mary's Hospital, Tucson, Arizona.

by the kidney more frequently totals 90% or less. This is accounted for by the fact that small amounts of I_{131} are to be found in perspiration, lungs, feces and other organs. Kidney function could alter the uptake so a more accurate determination is the accumulation rate, rather than the percentage. So far we have discussed only the study of the thyroid by inorganic I_{131}, but it is possible to study the fate of organic iodine by the use of labelled thyroxin but this is beyond the scope of this paper.

Now, if we turn our attention away from the more general aspects of I_{131}, we can consider its spectific potentialities in the treatment of definite disease states. First, the treatment of thyrotoxicosis. We must say at the outset that we do not wish to imply that radioactive iodine has, or even will, supplant the established methods of handling this condition but it has been used in a sufficient number of selected cases by numerous investigators so that some statements concerning its value are indicated. The usual forms of therapy for thyrotoxicosis are, of course, surgery or the use of anti-thyroid drugs which act by preventing the synthesis of thyroid hormone. X-ray therapy for this condition is of very questionable validity because of the potential danger to the overlying skin and adjacent organs, such as the trachea and esophagus. The biological effect of I_{131} is similar to x-ray treatment in that a specific concentration of I_{131} is located in the thyroid gland with a minimal effect on other tissues. Most of the activity of I_{131} is thru Beta rays which travel only 2.2 mm. in tissue. The dosage usually used is 0.1 and 0.2 millicurie per gram estimated weight of the thyroid gland. This is calculated to deliver 8,000 to 10,000 equivalent roentgens to the gland. Dosage depends on three factors: (1) fraction of dose taken up, (2) rate of elimination from the body, (3) total mass of the gland. The first two factors can be determined with a tracer dose before treatment is started, but the greatest source of error lies in the third factor which is an estimation. As to the results, a favorable response can be anticipated in about four weeks if such a response is to be obtained at all. If there are no results in eight weeks, the dose was too small and should be repeated. In evaluating this form of treatment, we must say that in a disease such as thyrotoxicosis when there are already effective, efficient and relatively safe methods of treatment, a new form of treatment must be shown to have considerable advantage before it can be widely accepted.

Thiouracil Treatment: This is good therapy if there is no tracheal compression. We think that it is fair to say that you can look for permanent regression in 50% to two-thirds of the cases so treated if treatment is continued for one year. One of the main advantages of this form of treatment is the low mortality – which is in the neighborhood of 0.5% resulting from agranulocytosis. Toxic symptoms developed in about 10% of the patients under thiouracil treatment severe enough to require stopping the medication in 7%.

Surgical Treatment: Surgical treatment is the treatment of choice in large glands or in patients with pressure symptoms. The results of surgery give more permanent and more rapid cures and the overall mortality is probably in the neighborhood of 2%. It cannot be denied, however, that the morbidity and complications attendant on surgical therapy are greater than with thiouracil treatment.

I_{131} *Treatment*: This mode of treatment is pleasant and is associated with no mortality and no morbidity, and does not involve a scar. In most cases, repeated doses will actually cause permanent remission of the disease. One main deterent in I_{131} therapy is the doubt which exists regarding the late results of radiation. There is comfort in the belief that malignant change is due to chronic low intensity radiation and not the rapid high intensity radiation of I_{131}. Surveys of follow-up studies of cases of thyrotoxicosis treated with external radiation have revealed cases of skin cancer as well as tracheal and esophageal malignancy but no thyroid cancer that is felt to be radiation induced. To date, no untoward radiation effects have been seen on other organs in cases under I_{131} therapy. I_{131} may be the treatment of choice for cases of recurrent thyrotoxicosis after operation and thiouracil failures in patients who refuse surgery and in primary thyrotoxicosis in elderly poor risk patients.

Surgery is, in our opinion, the best form of treatment for nodular hyperthyroid cases because of the danger of overlooking a deep-seated carcinoma of the thyroid gland which may occasionally be found in these cases. To be sure, there are many advantages in the use of I_{131}, however, this form of treatment does require rather

elaborate equipment as well as a team composed of a clinician, an x-ray therapist and a physicist who must jointly try to surmount the difficulty of proper dose determinations. Iodine I_{131} finds its greatest field of usefulness in the detection and treatment of non-operable malignancy. It is not of equal value in all forms of malignancy and its value is dependent on the histology of the tumor involved in the individual case. It has been estimated that I_{131} will be effective only in about 15% of all the cancers of the thyroid gland. Only those tumors which are colloid producers or who reproduce thyroid function can be expected to take up radioactive iodine. The best form of treatment for thyroid malignancy is still a radical thyroidectomy, perhaps removing all thyroid tissue at the same time in hopes that the tumor which is not removed can be made to take over the burden of hormone production and in that way convert it into a tumor that will pick up radioactive iodine. In this way it can be used to treat any residual or recurrent tumor which may recur and also for detecting and perhaps treating metastasis. The best results with metastases have been with bony lesions where the lesions have not disappeared but there has been some control of their growth and increased patient comfort. In those cases of thyroid malignancy in which the tumor does pick up radioactive iodine, this form of treatment has much to offer the patient both as a means of control and therapy.

PHOENIX *Clinical* CLUB

PHOENIX CLINICAL CLUB CASE DISCUSSION NO. 9

The Case History in this discussion is selected from the Case Reeords of the Massaehusetts General Hospital, and reprinted from the New England Journal of Medieine. The diseussant under Differential Diagnosis is a member of the staff of the Massaehusetts General Hospital. The other diseussants are members of the Phoenix Clinieal Club.

A thirty-eight-year-old French-American fish-cutter was admitted to the hospital because of jaundice.

The patient was perfectly well until four months before admission when he had an episode of vomiting food recently eaten. This was followed by the onset of flatulence and a sensation of upper abdominal fullness and anorexia, which persisted until the time of entry. There were occasional cramps and increased urge to defecate. Three months prior to admission the urine became darker. Two weeks later it was "reddish" for a period of three days; this change was unassociated with pain, chills or fever. One week later jaundice and pruritus, associated with dark urine and clay-colored stools, developed. Two months before admission he noted the onset of a dull ache in the right upper quadrant, which became increasingly more severe, finally requiring an injection by his physician. Following this he was admitted to another hospital, where he remained for one month. During the first week in the hospital he was febrile, the temterature going as high as 102.5°F., but without chills or leukocytosis. Pain did not recure after the first hospital day, although jaundice persisted. Following a coursc of penicillin and aureomycin the temperature became normal, and the patient's appetite returned. A cephalin-flocculation test was negative. During the five weeks before entry he was on limited activity at home but despite a high-caloric, high-carbohydrate, high-protein, low-fat diet he became progressively worse. Jaundice persisted, flatulence, belching and "gas pains" became more severe, and it was noted that his weight which before the onset of illness had been 165 pounds, now was 130. During the week before admission he vomited just before each meal the food he had eaten at the previous meal. There was no history of hematemesis, although there were two questionable episodes of tarry stools three weeks before admission and on the day of admission, respectively. Although jaundice had been constant, the color of the stools varied greatly from dark brown to light tan to clay.

Although his job was that of fish-cutter, he often supplemented his earnings by doing odd painting jobs and had been thus engaged, using a silver paint, shortly before the onset of the illness. There was no past history of jaundice or other serious disease, and he used alcohol only moderately.

Physical examination revealed a thin, jaundiced, middle-age man lying comfortably in bed in no distress. No spider angiomas were noted, and the chest and heart were normal. The liver edge, on inspiration, was palpable 2 cm. below the costal margin and was smooth and nontender. No other organs or masses were felt, and there was no tenderness.

The temperature was 100°F., the pulse 80, and the respirations 15. The blood pressure was 130 systolic, 90 diastolic.

Examination of the blood showed a red-cell count of 4,300,000, with a hemaglobin of 15 gm., and a white-cell count of 8,400, with 54 per cent neutrophils. The total protein was 7.25 gm. per 100 cc., with 5.02 gm. of albumin and 2.23 gm. of globulin (albumin-globulin ration of 2.3). The cholesterol was 320 mg. and the cholesterol esters 216 mg. per 100 cc. The van den Bergh test was 8.4 mg. per 100 cc. direct and 10.6 mg. indirect. The cephalin-flocculation test was negative in twenty-four and forty-eight hours; the thymol turbidity and the alkaline phosphatase 9.3 units. The urine gave a three plus test for bile on repeated examinations. The stools varied in color from dark brown through yellow to metallic gray and, with a single exception, gave two plus or three plus guaiac tests.

In the hospital the patient seemed somewhat improved and ate extremely well, complaining that the diet given him was inadequate. On the sixth hospital day the urinary urobilinogen was 3.7 Ehrlich units. The serum amylase was 123 units and lipase 3.4 units per cubic centimeter. The fasting blood sugar was 103 mg. per 100 cc. A plain film of the abdomen was negative for gallstones and showed no enlargement of the liver or spleen. A roentgenogram of the chest was within normal limits. A gastrointestinal series revealed no abnormality in the esophagus, stomach or duodenal cap. There was slight narrowing of the duodenum in the postbulbar region, but this was not constant. The remainder of the duodenum showed no defect or displacement, and no stones were identified in the region of the common duct.

On the tenth day an operation was performed.

JESSE D. HAMER, M.D.:

It appears quite certain, from a review of the history, physical findings and laboratory studies that pathological conditions characterizing this case have their genesis in the biliary tract. There are no reasons to believe that the long standing attacks of jaundice of variable degree, are the result of an extra-biliary origin, so that the various etiological factors in a case of prehepatic or hematogenous jaundice need not be considered. We are, therefore, left with a discussion of a differential diagnosis between pathological conditions reflected in an intra-hepato-biliary disease or some condition causing biliary obstruction, either intra or extra hepatic. It is always of paramount importance to attempt this type of differentiation in the first week or two of illness of this sort, so that one can determine with reasonable accuracy the question of surgical intervention.

It would be of interest to discuss the clinical application of liver function tests in considering this case, inasmuch as a number of them were done and reported in the protocol. It must be recognized at the onset that there is no single universally applicable test of liver function. There are several reasons for this. 1. The liver has a multiplicity of functions involving almost all phases of metabolism. 2. Alteration of one phase of hepatic activity does not always mean that other phases are altered similarly. 3. The liver is a very labile organ and dynamic changes in its function may occur with great rapidity. 4. This organ has a large reserve capacity, and major portions of it may be destroyed before liver failure occurs. 5. Liver damage from only a single cause, for example, from obstruction of the outflow of bile, or from a hepato-toxic agent, is seldom recognized as such.

It should be recognized also that secondary hepatitis occurs usually after common bile duct obstruction with jaundice of several weeks duration. Similarly, a hepato-toxic agent, although primarily inducing hepatitis, may also produce edema and swelling of the bile canaliculi, so that there is a secondary intra-hepatic bile passage obstruction.

This combination of causative factors then makes difficult the interpretation of liver function tests, designed primarily to differentiate obstructive from hepato-cellular jaundice. It is for this reason that the first two or three weeks after development of jaundice is the time for proper diagnostic evaluation, because, during this interval, secondary complicating factors are of minimal importance.

However, there are certain liver tests that measure specific functions, and these may be utilized by the clinician. An arbitrary classi-

fication of the more useful tests are as follows, and as we go along, let us see if they are of value in considering this particular case.

A. Excretory functions of the liver.
   1. Icteric Index, normal 4 to 6 units (no values are recorded in our case).
   2. Urine bilirubin, normally reported negative, again not reported here.
   3. Urine urobilinogen; normal 0.2 to 3 mg. in 24 hours. In this case, it was reported as 3.7 Ehrlich units.
   4. Bromsulfalein retention: normal after 5 mg. per Kg.—I. V.—none retained in 45 minutes. Test not recorded in this case.

B. Metabolic functions:
   1. Carbohydrate metabolism.
      a. Glucose tolerance test. In hepatic disease there is a fasting hypoglycemia and a prolonged hyperglycemia fellowing administration of glucose. No report in this case.
      b. Galactose tolerance test: After administration of 40 grams of galactose by mouth, the appearance of more than 3 grams in the urine within 5 hours indicates that the liver is unable to convert this sugar into liver glycogen. No test of this type reported, although the fasting blood sugar was done, and reported as 103 mg. %.
   2. Protein metabolism:
      a. Total protein; normal 6.5 to 7.8 gms. per cent. In this case it was 7.25 gms. %.
      b. Albumin-globulin ratio, normally 1.6 to 2. In this case the albumin was 5.02 gms. %, with normal 3.8 to 6.7 gms. %, and the globulin was 2.23 gms. %, with normal value in these elements of the blood serum.
      c. Tyrosinuria, normally negative, but when positive, indicates a grave prognosis, but is not reported in this case.
      d. Cephalin - cholesterol flocculation: Normally negative, but is usually positive only in the presence of active parenchymatous liver disease, such as active hepatitis. It was negative in this case.
   3. Fat metabolism:
      a. Cholesterol-cholesterol ester ratio: Normally 60% of total cholesterol is in an esterified form. This is decreased in hepatic disease. In this case, the cholesterol was 320 mg. per 100 c.c. (Normal for a male ranges from 150 to 240 mg. with cholesterol esters reported as 216 mgs. per 100 c.c., or a ratio of 67.5%.
   4. Blood forming activity:
      a. Red cells tend to be macrocytic in hepatic disease.
      b. Prothrombin time: This is prolonged in obstructive jaundice usually, due to inadequate absorption of the fat soluble vitamin K, because the bile salts fail to enter the intestine. Prothrombin time is also prolonged in hepatocellular jaundice because of the inability of the damaged liver to synthesize the available vitamin K with prothrombin. Normally the prothrombin time is 14 to 16 seconds. Here it is reported to be 17 seconds.
   5. Detoxifying function of the liver: Normal liver is able to conjugate sodium benzoate with glycine to yield hippuric acid. The excretion in the urine of less than 3 grams of hippuric acid in 3 hours after the administration of 6 grams of sodium benzoate by mouth, or of less than one gram of hippuric acid after 1.77 grams of the drug intravenously, is evidence of impaired hepatic function. Not reported in this case.
   6. Alkaline phosphatase production: Normally it is under 4 Bodansky units, or 10 King-Armstrong units. This may be increased by either an obstructive or hepatocellular type of jaundice. This was reported to be 9.3 units in this case. We do not know whether this represented the Bodansky unit value, or the King-Armstrong. If it is the K-A unit, then it was normal, or nearly so.

Other tests recorded in this case were as follows:
   1. Serum amylase, as 123 units, with normals ranging from 80 to 150 units.
   2. Serum lipase was 3.4 units, with normals from zero to 7.5 units.
   3. Urine showed a three plus bile.
   4. Thymal turbidity, recorded as 1 unit. This is a weak test, and it is only in the presence of a strongly positive thymol test, that the presence of important hepatic involvement can be suspected. This test may be

positive in several other pathological conditions.

5. Van Den Bergh was reported as 8.4 per 100 c.c. direct and 10.6 mg. indirect.

What conclusions can one reach then from a recitation of the above liver functions test, comparing those done on this case, with normal values? I believe that each of use would believe that they are of little value in this particular case, although we can assume there is very little evidence of extensive liver damage, in spite of the chronicity of the case. Let us recapitulate however, and summarize the value of these tests in a wide variety of types of jaundice. Especially in the hepatic type, where it has been found that certain relationships exist between them and the hepatic type of jaundice, whereas in post hepatic jaundice, or the obstructive type, the tests are infrequently of diagnostic value.

1. Common in hepatic, but uncommon in obstructive jaundice:
   a. All flocculation tests are strongly positive.
   b. Deep jaundice and normal alkaline phosphatase.
   c. Negative cephalin-cholesterol flocculation, and a strongly positive thymol.
   d. Normal or low total cholesterol with depression of cholesterol esters, normal alkaline phosphatase, and moderate to marked hyperbilirubinemia.
   e. Serum bilirubin greater than 35 mg. percent with urobilinogenuria.
2. Common in obstructive jaundice, uncommon in hepatic jaundice:
   a. Slight hyperbilirubinemia, marked elevation of alkaline phosphatase, especially with carcinoma.
3. Common in both hepatic and complicated posthepatic jaundice:
   a. Undependable for differential diagnosis.
      1. All flocculation tests negative or positive.
      2. The acholic stool (low fecal urbolinogen).
      3. Positive cephalin-cholesterol flocculation and negative thymol.
      4. Elevated alkaline phosphatase and total cholesterol, often with decreased cholesterol ester percentage.
      5. Normal or decreased prothrombin activity with positive or negative response to vitamin K.
      6. Urobilinogenuria, present or absent.
      7. Decreased serum albumin and elevated total globulin.

So where are we now, after a consideration of the foregoing, and comparing our findings here with the normals? Nowhere, I suspect, in a differential diagnosis. What are we to do now? Just like the doctors did, study the case ten days, decide we know what the trouble is, that the man has an obstructive jaundice, or perhaps he has, and open him up to find out, I have a feeling the man did have an intermittent obstructive jaundice, with very little evidence of liver involvement or damage, and that there will be a new growth found at the ampulla of Vater, without serious involvement of the pancreas.

DISCUSSION AT MASSACHUSETTS GENERAL HOSPITAL

DR. EARLE M. CHAPMAN: When one tries to reconstruct the story of jaundice the record says "the jaundice was constant." I cannot tell whether the jaundice was of three weeks' duration or longer. I suppose it persisted throughout the illness.

DR. ALFRED KRANES: The jaundice was constant but fluctuated in degree, not only clinically but also by chemical tests. When the patient was discharged from the other hospital the icteric index was considerably below that of admission. The jaundice never completely disappeared.

DR. CHAPMAN: That is helpful. The record states that the patient used alcohol only moderately. Did you decide that it was moderate?

DR. KRANES: I did not know about that.

DR. CHAPMAN: Was his temperature rectal or by mouth? I assume it was by mouth since it was not stated. If so, he had a fever.

DR. KRANES: He had no fever in this hospital except for one period of twenty-four hours.

DR. CHAPMAN: I think we had better see the x-ray films at this point. The record states that they were normal except for what is de- the post-bulbar region.

DR. STANLEY M. WYMAN: The films of the chest are not remarkable. The liver shadow as described appears within the limits of normal. There is no evidence of intrinsic disease in the stomach. The narrowing of the post-bulbar re-

gion of the duodenum is seen at this point, and it appears on the spot films. It does seem to change somewhat in caliber.

DR. CHAPMAN: Compression from something external?

DR. WYMAN: Pressure from something extrinsic. The mucosal pattern is perfectly normal in the entire area. There is no evidence of convergence of folds. It looks as if something is pressing on the distal portion of the duodenal cap, causing a narrowing rather than something in the duodenum. There is another finding of considerable value, and that is what I believe to be compression of the second portion of the duodenum on its medial aspect about at the junction of the middle and distal thirds over an area measuring 2.5 cm. in length. This is also seen on this spot film, in which there is a filling defect at this point. It is not reproduced on all the films.

DR. CHAPMAN: That lies in the region of the head of the pancreas anatomically.

DR. WYMAN: Yes. Although it is well visualized on only two or three films, and not on all films, the filling defect is a valid finding.

DR. CHAPMAN: I think it is more significant than I was lead to believe from reading the record. There is more mischief in this area from looking at the film than I thought from the description. What was found at operation is what they are asking me. I will start by saying that I have no idea really. It is a difficult diagnostic problem. Since this man was a fish-cutter, we have to consider Weil's disease. It probably is a "red herring." Davidson reported Weil's disease in fish-cutters in Scotland, who acquired it in their occupation. This man did not have an acute disease and was almost afebrile, so I think we can exclude Weil's disease. However, the illness started with dark urine.

DR. KRANES: The dark urine noted the week before the jaundice was hematuria. It had a good many red cells in it.

DR. CHAPMAN: This is interesting. The record said "dark" urine; it did not say "bloody" urine.

DR. KRANES: I did not see it. His family said that microscopically it was full of red calls.

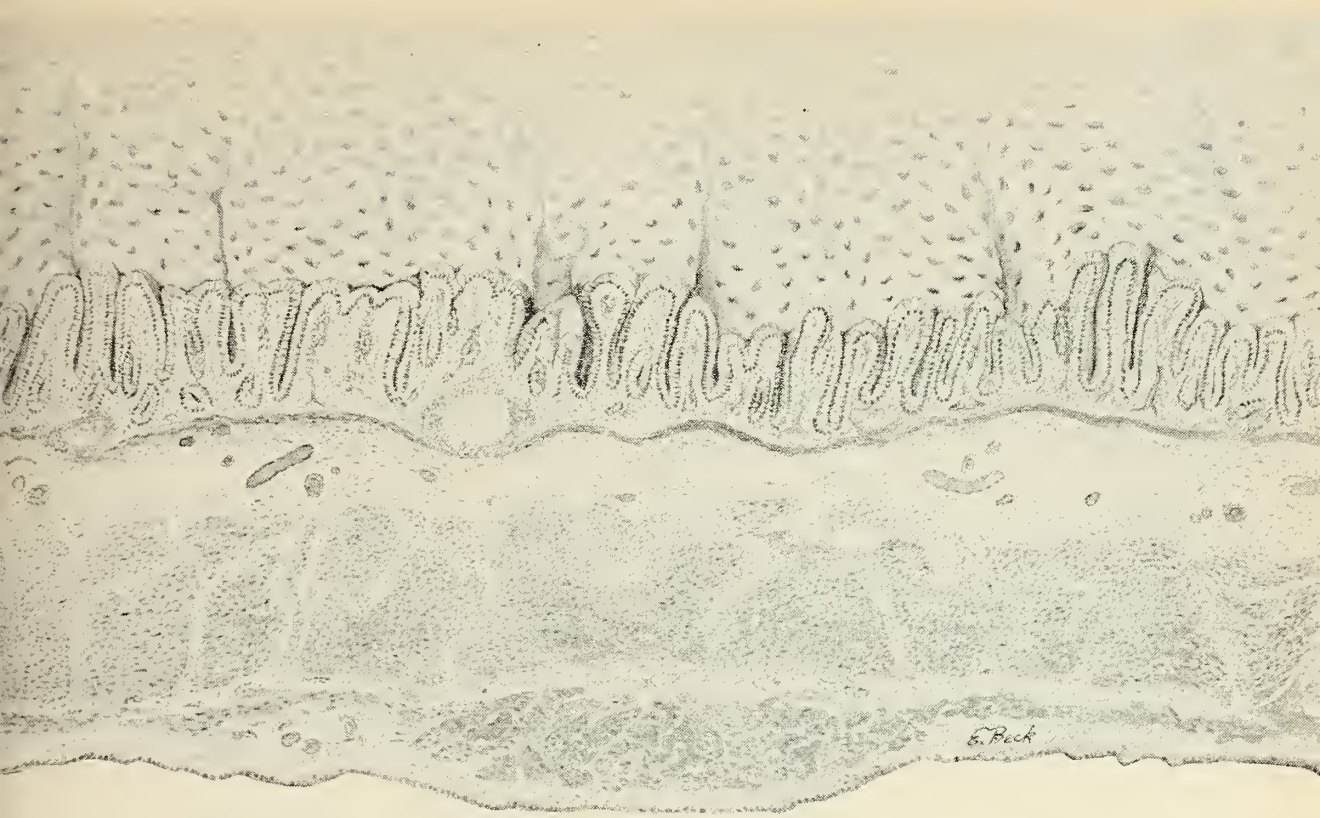
DR. CHAPMAN: I thought of the possibility of Weil's disease. The patient was a fish-cutter, and we have seen the disease among people with that occupation in Boston. Yet this seemed like a chronic disease. If it was a complication of Weil's disease we ought to find something like abscesses in the region of the head of the pancreas. This bothered me a little, but I decided to exclude it because the progress of the illness did not seem to fit the diagnosis and someone should have made a diagnosis of Weil's disease. But there it is—he was a fish-cutter, with a febrile illness to start with. Why did it take so long? I did not think of it last night when I first read the record, but now that I have seen the films I am thinking of the possibility of abscess. I have to change my thinking of 11:30 last night.

The laboratory evidence is confusing, but from it one gathers that there is no good evidence on which to base the diagnosis of intrinsic liver disease. I do not see how we can support cirrhosis or infectious hepatitis. All the laboratory changes are consistent with the intermittent type of obstruction to the outflow of bile. The clinical description Dr. Kranes gave us and the laboratory changes all fit together.

We are all faced with the question of what would lead to an intermittent obstruction in the region of the head of the pancreas. What lesion would fit with the x-ray evidence? Of course the commonest thing in this location, even though thirty-eight years of age is a little young, is carcinoma of the head of the pancreas. We know that carcinoma in the head of the pancreas can erode the ampulla of Vater and lead to blood in the stools, and it can lead to intermittent obstruction and cause the type of distortion seen in the x-ray film. That is the likeliest possibility, but there is one thing strikingly against the diagnosis of cancer. I cannot believe that a man who had cancer and who died of it, let us say, would complain that the diet in the hospital was inadequate and want more food. That is a clinical fact against carcinoma of the head of the pancreas. That is the one statement that I underlined as being against that diagnosis.

Could he have had a stone, a so-called silent stone, in the head of the pancreas? A large nonopaque stone does not cause a shadow and could have bored in there and got mixed in with the pancreatic duct and eroded the whole area and caused mischief.

If we go back to the beginning of the history, he had occasional cramps and increased urge to defecate when the illness started. If we try to reconstruct the events from the begin-



Normal peristaltic action results from activity of the muscle layers as they are gently distended by bulk within the intestine; mucosal irritants cause overactivity of the muscle layers resulting in hyperperistalsis or spasm.

Corrective Action of Metamucil® in Abnormal Physiology of Constipation

Abnormally prolonged colonic retention, whether in a spastic or an atonic colon, demands the greatest care to assure correction.

The mucosa does not require stimulating; hence, stimulating cathartics, "roughage" and other physical and chemical irritating measures, are today often considered irrational.

On the other hand, the muscularis does require a stimulus to initiate peristalsis. This physiologic stimulus is the mechanism by which bland distention of the colon establishes a reflex, with the muscularis at the terminus of the reflex arc.

Metamucil literally reeducates the sluggish and also the spastic colon. Taken with adequate amounts of water, Metamucil forms a smooth, hydrophilic colloid. As this colloidal mass passes through the large intestine, it exerts a gentle, distending pressure within the lumen, thus initiating the peristaltic reflex necessary for evacuation.

A program of Metamucil therapy helps to restore proper tone to the intestinal musculature, thereby establishing proper bowel habits.

Metamucil® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

G. D. Searle & Co.

Research in the Service of Medicine

ning of the illness we have to consider silent stone in the head of the pancreas, not reflected here in the x-ray films, and then consider inflammatory reaction around it. There must have been considerable inflammatory reaction around this area whatever it is, because the serum amylase was high (123 units), which is evidence of destruction of the pancreas. The upper limit or normal is 40 units. I might say in passing that jaundice has been described as coming on after penicillin and also described after pentathal anesthesia. He did not have any such things injected into him, did he, Dr. Kranes?

DR. KRANES: Penicillin was given by the family physician after the patient had become jaundiced because he was running a septic fever.

DR. CHAPMAN: But he had no operative procedure, before the onset of his illness. I wondered if it might be related to an infected syringe or anything of that sort. There was nothing of that nature antecedent that you know of?

DR. KRANES: No.

DR. CHAPMAN: Was this, then, a stone, a tumor or an inflammatory mass? I am beginning to change my mind. Last night I was all for cancer of the head of the pancreas or ampulla of Vater. Having seen the films and reconstructed the story, however, I am now thinking that this mass was inflammatory and that is about as far as I can go. I do not see how an area of obstruction across this region such as Dr. Wyman described can come from a vascular structure. I had thought of aneurysm of the abdominal aorta, but that does not fit this, does it?

DR. WYMAN: No, but it fits with dilated common duct pressing on the duodenum.

DR. CHAPMAN: I cannot do any better than this. We might give someone else in the audience a chance.

DR. JACOB LERMAN: What did the X-ray Department think it was?

DR. BENJAMIN CASTLEMAN: They thought it was inflammatory.

DR. CHAPMAN: I did not mention retroperitoneal lymphoma. I considered the possibility of a tumor of the lymphoma series involving the head of the pancreas and pressing on the duodenum.

DR. HOWARD B. SPRAGUE: Could it have started with pancreatitis?

DR. CHAPMAN: An inflammatory mass subsequent to ordinary pancreatitis? Yes, that is perfectly possible. My first choice is an inflammatory mass, with pancreatic destruction. That fits the laboratory evidence best, and what lies behind that remains to be seen.

DR. WYMAN: There is a suggestion that this is well localized, so that I should place more emphasis on common-duct stone with secondary dilation of the common duct or a tumor of the ampulla of Vater or the distal end of the common duct. However, a carcinoma of the pancrease or, I suppose, an inflammatory mass could look exactly the same.

DR. CASTLEMAN: Have you any comment, Dr. Boyd?

DR. WILLIAM BOYD (Toronto): I think pancreatitis of some type might be all right.

DR. LYMAN DUFF (Montreal): The possibility of pancreatic cyst might be suggested; that is no more impossible than any of the other suggestions made.

DR. KRANES:' I saw this patient on only one occasion about one month after he became ill in the other hospital. At that time he was on the mend, the jaundice diminishing, his appetite, which had previously been very poor, had increased enormously, and in general he was a great deal better. The history at that time—jaundice, nausea and fever, followed by the subsidence of the jaundice and the return of the appetite—was fairly characteristic of acute hepatitis. I might say in further support of that diagnosis that he was rather tender in the right upper quadrant. That is not brought out well in the history. The only thing that disturbed us was the fact that the fever occurred about two weeks after the onset of the jaundice rather than preceding the jaundice, and the laboratory tests were those of obstructive jaundice. Since he was improving it was decided to let him go home and see if he continued to improve. As the history brings out, although the appetite remained good he continued to lose weight, his jaundice grew more intense and repeated cephalin-flocculation tests done during this period were negative. So he was readmitted to the hospital with a diagnosis of obstructive jaundice. When he arrived on the ward everyone who saw him from students to house officers and visiting physicians all thought he had hepatitis until the results from the laboratory work were returned and the impressions were changed.

CLINICAL DIAGNOSIS

Infectious hepatitis?

Obstructive jaundice?

DR. CHAPMAN'S DIAGNOSIS

Inflammatory mass in region of head of pancreas.

ANATOMICAL DIAGNOSIS
ADENOCARCINOMA (LOW GRADE) OF AMPULLA OF VATER
PATHOLOGICAL DISCUSSION

DR. CASTLEMAN: The operation on the tenth day was an aspiration of the liver, which showed evidence of biliary obstruction. The bile ducts were all distended with bile. There was no doubt of an obstructive jaundice, and with that diagnosis Dr. Linton operated. He found a large, distended gall bladder; the head of the pancreas felt pretty hard, but a rush frozen section and a biopsy showed normal pancreas. The common duct was markedly thickened and dilated, probaly two or three times the normal size; this was strong evidence that there was an obstruction at the ampulla. The duodenum was therefore opened, disclosing a papillary lesion surrounding the papilla of Vater. A Whipple operation, which consisted in removing the head of the pancreas and duodenum and anastomosing the end of the common duct into the jejunum, was then performed.

The specimen we received showed a papillary tumor measuring 4 cm, in diameter probably arising in the duodenum, completely surrounding the ampulla and producing complete obstruction. The center of the tumor was at the ampulla. Histologically this was a slowly growing adenocarcinoma with very little invasion. We found one spot where it had gone beyond the muscularis mucosa, but there was no invasion of the pancreas at all.

Following operation the patient developed a localized abscess which was drained, and he is aparently doing well. A dozen regional lymph notes were examined, and they were all normal. I am quite certain that there are no metastases.

———O———

THE CHIROPRACTOR AT WORK

Today, from many sections of the country comes the story of the chiropractor at work. It is apparent he seeks to acquire through Legislation, recognition which on the basis of education and training, or lack of it, he is not entitled. Too few physicians are concerned, at this stage, over the issues and too many, too late, will become indignant if and when the present objective is achieved.

Concerted effort is being made by the chiropractic block in the Legion to bring before that body a very large number of affidavits, estimated at 10,000, from veterans insisting of the Legion that it support legislation in Congress demanding that veterans be entitled to receive chiropractic treatment as a benefit. Arizona in the past has expressed opposition to such action. Have you taken advantage of membership in your local Post? Are you assisting in the development of its policy? This is another opportunity to render a constructive service.

——o——

INTERNATIONAL COLLEGE OF SURGEONS

Qualifying examinations for Fellowship in the United States Section of the International College of Surgeons will be held on the following dates in 1953: February 2 and 3, May 4 and 5, August 10 and 11, and November 2 and 3. The examinations will be given at the Cook County Graduate School of Medicine, and the Cook County Hospital. Applicants are requested to address communications as follows:

Harry A. Oberhelman, M.D., Secretary
Qualification and Examination Council
1516 Lake Shore Drive
Chicago 10, Illinois



ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

The PRESIDENT'S *Page*

EXTENSION OF PUBLIC LAW NO. 779

THOMAS H. BATE, M. D.
PRESIDENT
ARIZONA STATE MEDICAL ASSOCIATION

PUBLIC LAW NO. 779, "THE DOCTOR DRAFT," WILL UNDOUBTEDLY COME BEFORE THE EIGHTY-THIRD CONGRESS. WHAT ACTION TO BE TAKEN REMAINS TO BE SEEN. IT IS HOPED THAT SHOULD THE LAW BE EXTENDED CERTAIN FACTORS WILL BE CAREFULLY CONSIDERED. THE POOL OF MEDICAL MANPOWER IN THE UNITED STATES IS CERTAINLY NOT INEXHAUSTIBLE AND NO WASTE CAN BE TOLERATED.

ONE OF THE MOST SANE APPROACHES TO THIS PROBLEM HAS BEEN PROPOSED BY THE SPOKANE COUNTY MEDICAL SOCIETY UNDER THE DATE OF DECEMBER 15, 1952. WE QUOTE IN PART THE RECOMMENDATIONS RELATIVE TO EXTENSION OF PUBLIC LAW NO. 779:

"PUBLIC LAW NO. 779 IS RECOGNIZED AS BEING DISCRIMINATORY CLASS LEGISLATION. THE EXTENSION OF THIS LAW SHOULD NOT BE OPPOSED PROVIDED A GENUINE NEED FOR ADDITIONAL MEDICAL CARE BY OUR FIGHTING MEN IS DEMONSTRATED BY THE DEPARTMENT OF DEFENSE. THE CONSCRIPTION OF CIVILIAN PHYSICIANS INTO MILITARY SERVICE MUST BE CONTINUED ONLY AFTER THE FOLLOWNG CONDITIONS HAVE BEEN MET AND A NEED FOR ADDITIONAL PHYSICIANS PROVEN:

THE MAXIMUM EFFICIENCY MUST BE ATTAINED BY THE ARMED FORCES IN THE UTILIZATION OF MEDICAL OFFICERS; THE PROVISION OF MEDICAL CARE TO CIVILIAN EMPLOYEES AND MILITARY DEPENDENTS BY MEDICAL OFFICERS, WHEREVER IT IS AVAILABLE THROUGH CIVILIAN FACILITIES, MUST BE ELIMINATED; REGULAR MEDICAL OFFICERS MUST NOT BE RETIRED FROM THE SERVICE DURING THIS EMERGENCY IF THEY ARE CAPABLE OF CONTINUING PRACTICE.

THE NEED FOR THE HIGHEST QUALITY MEDICAL CARE FOR THE MEN IN OUR ARMED FORCES IS RECOGNIZED BUT IT IS ABSOLUTELY ESSENTIAL THAT ALL WASTE, DUPLICATION OF EFFORT AND INEFFICIENCY IN THE UTILIZATION OF PHYSICIANS IN THE SERVICE BE ELIMINATED.

IF AN EXTENSION OF THE DOCTOR DRAFT LAW BECOMES NECESSARY, SELECTION MUST BE ON THE BASIS OF LENGTH OF PRIOR MILITARY SERVICE AS SPECIFIED UNDER THE PRESENT LAW. THE ARMED FORCES MUST ACCEPT MINIMUM PHYSICAL QUALIFICATIONS FOR MEDICAL OFFICERS COMMENSURATE WITH THEIR ABILITY TO CONDUCT CIVILIAN PRACTICE. WORLD WAR II SERVICE IN ALLIED ARMIES MUST BE CLASSIFIED AS EQUIVALENT TO THAT OF SERVICE IN THE FORCES OF THE UNITED STATES."

IF THESE SUGGESTIONS AND RECOMMENDATIONS ARE CAREFULLY CARRIED OUT, THE MEDICAL MANPOWER POOL WILL NOT BE TAPPED USELESSLY.

Editorial

ARIZONA MEDICINE
Journal of
ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 JANUARY, 1953 NO. 1

EDITORIAL BOARD
R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS
William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson

COMMITTEE ON PUBLISHING
R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford

ADVERTISING AND SUBSCRIPTION OFFICERS
J. N. McMEEKIN, Business Manager, 426 Heard Building
Phoenix, Arizona
Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

ACTH AND CORTISONE
Dangers and Abuses

Probably never before in the history of medicine has so much been written in so short a time regarding a new therapeutic agent. These substances have been available for about three years, and for only two years in any quantity. Despite this very short period of experience, these powerful substances unfortunately have rapidly become popular as the treatment of choice in a long list of chronic diseases. Rheumatoid Arthritis, diffuse Collagen disease and Bronchial Asthma lead the list, numerically.

It is now perfectly clear that these drugs do not cure, but only suppress the symptoms temporarily, while the underlying disease remains unchanged. Furthermore, in chronic disease, when treatment is discontinued, there is frequently a very severe exacerbation of symptoms.

Toxic effects are, in general, related to the size of the dose and the length of administration. The chief adverse physiological effects are round face, edema, insomnia, acne, hirsutism, pigmentation, depression, psychosis, peptic ulcer symptoms, weakness, tachycardia, hypertension, pulmonary edema with congestive failure, thrombo-embolic disease, inability to localize intercurrent infections and pathological fractures, due to osteoporosis. Long-term studies now reported reveal that fully 80% of patients on continuous treatment for two years or more, will show one or more of these adverse effects.

In addition to the hazards of adverse physiological effects, the end result, therapeutically, after long-term treatment, is not striking. In general, not more than one-fourth of the patients, after two years on long-term treatment, will continue to receive worthwhile help.

Cortisone and ACTH have a well-earned place in the treatment of many acute conditions when short-term therapy, only, is required. When small doses are effective, there also is a definite place for these substances in some chronic diseases. The improvement and often dramatic relief obtained when initiating treatment with ACTH or Cortisone has led to many abuses and often catastrophe. The initial, easy, quick relief has encouraged neglect of the more basic, but slower, helpful procedures. Certainly, the physicians with most experience in using these substances are usually the slowest to prescribe them.

ACTH and Cortisone should be prescribed in chronic disease only after the patient has been established on a basic routine of treatment and with a full appreciation of the risk and the pos-

sible long-term result. The patient must be carefully evaluated psychologically and have a full explanation given him regarding the long-term problems in the use of these substances. There is no place in medicine for the casual use of these drugs.

TOPICS OF *Current Medical* INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M. D.

Literature for a new **pregnancy test** has begun to arrive. It is called the "Q-Test," and is produced by the General Pharmacal Co. of Los Angeles. It boasts of being accepted by the JAMA (for advertising) . . . For those who have not time to delve, the test was thought of in 1914, tried in 1941, and successfully used and described in 1951. . . . The method consists of an intradermal injection of human primiparous colostrum, and a differential reading within an hour. . . . A "pregnancy reaction' was found in 95% of proved pregnancies; a non-pregnancy reaction was obtained in 98% of proved non-pregnant women and in 100% of males. . . . The cost is relatively small and the speed is notable. It should be a money-maker, if the later reports are confirmatory.

The newest Sanborn device for giving information about the heart is the "Twin-Beam Cardiette, Model 62." It startles one to find that certain dreams and promises of a few years are at hand. . . . The Twin-Beam produces,—1, high deflection speed ECG; and 2 phonocardiograms. **. . . . The phonocardiogram reproduces a wide range of cardiac sounds by electrical auscultation. . . . The production of the machine is limited, and the price is also somewhat limiting ($1,750 F.O.B., Cambridge, Mass.).**

The newest method for interpreting electrical activity of the heart has reached book form. Grishman and Scherlis have written on **"Spatial Vectorcardiography."** . . . The vectorcardiogram is the visualization of total activity in 3 planes—frontal, sagittal, and horizontal. The result is what looks like a series of flying uteri. The book tells how to do and interpret. . . . Remember, they once laughed at Ike Starr and his balistocardiograms?

Medical Economics contains the story of the four doctors at lunch one day who decided to confess their faults. The first admitted that he made snap diagnoses, the second conceded that he charged too much, the third said he did unnecessary operations, but the fourth demurred, and had to be urged to tell his fault. Finaly he said, "All right, fellows, my worst fault is gossip—and I can hardly wait to get out of here!"

The **proteolytic enzyme** trypsin (Tryptar, of the Armour Laboratories) is being recommended for "cleansing the bronchi" in aerosol form. . . . Many forms of bronchial disease are supposed to respond, especially when the drug is used with antibiotics, antihistamines, antispasmodics, etc. . . . We would like to suggest that the material can be irritating, and can produce an allergic as well as chemical irritation in some cases.

If one cribs from Spink and from Alvarez on the subject of Brucellosis **one can list quite a few valuable pointers:**

1. Thirty per cent of the herds in one midwestern state are infected with Brucella.

2. Seventy-five per cent of the human cases come from direct contact with infected animals; about 25 per cent come from drinking raw milk.

3. Children of less than 12 years are very resistant to infection.

4. Doctors are making more precise diagnoses of brucellosis, less often hanging the name on a neurosis.

5. The blood culture is the most certain means of diagnosis. Lymphnode biopsy is often feasible. Agglutination is the better than most other methods, especially if the Bureau of Animal Industry antigen is used. (Titers below 1 to 100 are not very significant.) Skin-tests, complement fixation test and the opsonocythophagic test can all be discarded.

---

6. Eighty-per-cent of those infected recover, usually within a year, no matter what therapy. Aureomycin and terramycin are definitely effective.

A new use of **plastic** may result in the replacement of plaster of Paris for moulded splints. . . . The powder comes in a can, is dissolved in water, a catalyst is added, and the bandages are dipped and applied. . . . The casts are said to be stronger and to weigh from ⅓ to ½ of plaster casts. . . . They are water resistant, and porous enough to allow evaporation of skin moisture.

The Seventh Saranac Symposium **was held in late September. The Symposia are organized every few years, originally for discussion of silicosis, more recently for the whole field of "inhalation of industrial substances. . . . The subjects included silica, asbestos, beryllium, bauxite, coal, cancer,**

Mothers will thank you





Swallowed Whole



Chewed
Or in Food Or Liquid



Dissolved on Tongue

NEW FLAVORED

CHILDREN'S SIZE

BAYER ASPIRIN

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc.
1450 Broadway, New York 18, N. Y.



- The Best Tasting Aspirin You Can Prescribe.
- The Flavor Remains Stable Down to the Last Tablet in the Bottle.
- 24 Tablet Bottle . . . 2½ gr. each 15¢

2½ gr. ⇨ 1¼ gr.

Grooved Tablets—
Easily Halved.

weaving, emphysema, cardiac disability, compensation. . . . The participants were from medical, teaching, statistical, insurance, research, and public health groups. They were from the U. S. and Canada, Saranac and the wide world, and they numbered 52 specialists.

A great many medical surveys do not bear repetition. The second go-round, by the same or another group, often shows a poorer percentage than the first. . . . An exception is notable. Dr. Herman Hilleboe, N. Y. State Health Commissioner, says that the latest data on the Kingston-Newburgh **fluoridation** studies (in progress since 1944) show a 47 % reduction in dental decay, compared with a figure of 32% in 1950. . . . The reduction is greatest among children who have used fluoridated water since birth. Decay in baby teeth has been reduced to a great rarity compared with the controls.

We have just heard the preview of a Los Angeles report on the use of Intermittent Positive Pressure **(I.P.P.) in chronic respiratory diseases. It will apear in the J.A.M.A. soon. . . . The method is not hazardous if used under medical supervision. It is valuable in well chosen cases. . . . Emphysema is often helped, but to varying degrees. Asthma is dramatically relieved, but not permanently changed (by I. P. P. alone). . . . The effect on bronchiectasis is the most notable. Bronchdilators, terramycin, the oxygen, and the positive pressure (about 20 cm of water) produces great relief. The secretions are not forced in, but are extracted by the action of the cycle. . . . The authors are Reginald Smart, George Pearson, and an associate from Fontana.**

BCG vaccine has had a series of obstacles in its way ever since 1926. The most recent is Dr. Milton Levine of New York, one of several Levines concerned with BCG. . . . His article in Diseases of the Chest is titled "Deficiencies in our knowledge of BCG vaccine," and it is not unfair to say that he himself has piled up a big lead in faults before he gets to anyone else. . . . It is legitimate to mention the unknown angles, but it is not correct to say that vaccine must be made and used so fast that purity cannot be determined. . . . The chief source in the U. S., and the first licensed (Research Foundation, Chicago), has checked all liquid suspensions for years, and a check up of the lyophilized preparations now in use (which are good for 6 to 12 months) presents no problem whatever.

Are you familiar with diacetylhydroxyphenylisatin? Or even plain ISATIN? . . . If not, you don't know that prunes have gone scientific. Isatin is the principal laxative component of prunes, though it works in conjunction with the colloidal and emolient effects of prunes. . . . Osler has never been more surprised, since the action of prunes had never seemed to have much proven basis. . . . One can now buy tablets with methylcellulose and the isatin material; a syrup with the prune extracts; etc. . . . Some of them seem to work.

Chemotherapy Notes—Terramycin is given credit for being somewhat helpful in ascariasis (as well as pinworms), and valuable in pyorrhea. . . . Bacitracin (IM) has been tolerated and effective in acute staph, lung abscess, resistant to other antibiotics. . . . A Spanish report says that Terramycin was not accompanied by diarrhea or other intestinal reactions. This must be different stuff from that which we see here. . . . Sensitivity tests are a necessity in guiding antibiotic therapy. . . .

The Aureomycin people feel that the current tests may favor Terramycin. . . . Surgical infections, especially from Ps. aeruginosa, may respond well to a combination of bacitracin and polymyxin B. . . . The most recent book on penicillin is by an English M. D., **Lady** Florey. ..... Gonorrheal, not trachomatous, conjunctivities is the scourge of North African eyes. Whole villages may be blinded in epidemics. The successful treatment suggested in a recent report is the local instillation of aureomycin. (Note—other drugs are known to do as well.)

This is a semi-medical, semi-chemical story. don't look too closely, please. . . . A V.A. official from New York tells of an experience which a friend had on the medical staff of Cornell. . . . Someone called from a fraternity house to say that their cook was sick and "her urine steamed." He left word for a specimen to be saved, saw the cook that evening, diagnosed cystitis, and took the specimen to the lab. . . . Half way there the top of the bottle popped off and all of the urine fizzed out of the bottle. . . . He phoned back for another sample, tightly corked it, took it to his office next morning, carefully loosened the cork, and it hit the ceiling with half of the liquid. . . . The remainder tested positive for sugar, and the culture grew a yeast! . . . "Yes," said the doctor, "The infection cleared at once when the diabetes was controlled. We never did test for alcohol, though, and nobody could give the stuff a name!"

———O———

METHODIST HOSPITALS GET A.M.A. PAMPHLET

The A.M.A. recently provided 47,000 copies of the PR pamphlet, "Your Money's Worth in Health," to the Board of Hospitals and Homes of the Methodist Church.

The Methodist Church has 193 hospitals and homes affiliated with this board, which last year ministered to 1,294,000 persons.

Secretary's Letter



MEDICAL & DENTAL

Bulletin

Published Monthly By

MEDICAL & DENTAL FINANCE BUREAU

GEO. E. RICHARDSON, PRES.

HOME OFFICE:
FIRST STREET AT WILLETTA
ALPINE 8-7758

DOWNTOWN OFFICE:
407 PROFESSIONAL BLDG.
ALPINE 4-4688

Issued Monthly

Free to Practicing M.D.s

I WISH WE HAD THE INSTALLMENT DEAL MEDICAL AND DENTAL GIVES YOU PHOENIX DOCTORS . . . SOME OF MY PATIENTS SURE NEED IT!

MY DEAR, COLLEAGUE, DON'T TELL ME YOU DON'T KNOW MEDICAL AND DENTAL BUDGET PLAN FOR HEALTH IS OPEN TO ANY DOCTOR IN ARIZONA . . . GET THEM TO SEND YOU THEIR KIT FOR OUT OF TOWN M.D.'s



Yeah . . . just clip this:
Medical & Dental Finance Bureau
Drawer 1217, Phoenix, Arizona.
Tell me how I can use your BUDGET PLAN FOR HEALTH material in my own office.

Dr. .....

Address .....

City .....

MARICOPA COUNTY MEDICAL SOCIETY

WHEREAS, our Society was shocked at the untimely death of our fellow member, Dr. Perry W. Bailey, and

WHEREAS, Dr. Bailey was known to us for his professional ability and high ethical standards,

BE IT RESOLVED, that the Society and the Community has lost a contributing member and supporter of the high ideals of medicine and citizenship; that the nation has lost a patriot who served actively in four military campaigns—with General Pershing in Mexico, then in World Wars I and II and in Korea,

BE IT RESOLVED, that a copy of this Resolution be forwarded to the family of our deceased member also be spread upon the Minutes of the Society.

WHEREAS, our Society was shocked at the tragic death of our fellow member, Dr. Jaroslav Martinek, and

WHEREAS, Dr. Martinek had become known to us by his professional ability and courageous manner in the face of personal disability, by his willingness to meet his responsibilities to his patients and his associates, therefore

BE IT RESOLVED, that this Society has lost an able member and supporter of the high ideals of medicine; that the community has lost the services of a qualified physician and a loyal citizen—a man of unusual strength of character.

BE IS RESOLVED, that a copy of these resolutions be forwarded to the family of our deceased member, and also be spread upon the minutes of the Society.

WHEREAS, it has suited the inscrutable ends of an All-wise Providence to call from his tasks our friend and colleague, L. Clark McVay, and

WHEREAS, through his years of association with us in the practice of medicine, his struggle has been continuously for higher standards of medical practice and has been particularly directed toward the improvement of obstetrics to the end that the safety of the mother and child be best preserved, and

WHEREAS, throughout his career he did stoutly maintain and affirm the principles in which he believed, and

WHEREAS, he has been called from his career at the height of its usefulness and has laid aside his tools and ceased his struggles.

NOW THEREFORE, do we, the members of the Maricopa County Medical Society, hereby resolve that this Society spread upon its minutes and make known to the family of L. Clark McVay its enduring admiration of his personal character and professional proficiency, its brief and sense of bereavement at his untimely death.



RE: Council Meeting 11/9/52
Secretary & Editor-in-Chief
Resignations
December 15, 1952

R. Lee Foster, M.D., Editor
Arizona Medicine Journal
15 East Monroe
Phoenix, Arizona

Dear Dr. Foster:

As you know, Council at its meeting held November 9, 1952, received and accepted the resignation of Frank J. Milloy, M. D., as Secretary to the Association and Editor-in-Chief of the Arizona Medicine Journal, a publication likewise of the Association. Council directed that a letter be prepared and forwarded to Dr. Milloy thanking him for all the services he has put forth for the State Association over the years; also, that its content be published in the State Journal. I am enclosing a copy of my letter forwarded to Dr. Milloy under date of November 20, 1952, which is self-explanatory.

Cordially,
THE ARIZONA MEDICAL ASSOCIATION, INC.
D. W. Melick, M. D.
Secretary

DWM:er
Encl.

RE: Council Meeting 11/9/52
November 20, 1952

Frank J Milloy, M. D.
18 North Country Club Drive
Phoenix, Arizona

Dear Doctor Milloy:

Council, in meeting recently held in Tucson, received your letter of October 26th tendering your resignation as Secretary of this Association. It was also indicated at the meeting that it is your desire likewise to relinquish your position as Editor-in-Chief. Accordingly, your resignations were accepted with reluctance.

It is the desire of the members to let you know that they are fully cognizant of the invaluable contribution you have made to organized medicine and this Association during the many years of your long tenure as an elected official. With warm esteem and affection, Council wishes to express its grateful appreciation and thanks to an able and conscientious administrator for a service performed with dignity and worthy of commendation.

Coordially,
The Arizona Medical Association, Inc.
Dermont W. Melick, M. D.
Secretary

DWM:mm

REPORT OF THE DELEGATE

Intirim Session, American Medical Association
Denver, Color. — Dec. 2-5, 1952

Some of the important actions taken by the policy making body of the A.M.A., the House of Delegates, at its sessions in Denver will be reported in abstract, so that the members of our Association may be informed. Many of the actions adopted by this body can be used as guides in a direct or indirect manner by the constituent and county medical societies.

The President of the American Medical Association offered several constructive suggestions covering several avenues of action which were embodied in his annual report to the House. Those of noteworthy importance adopted by the House upon recommendation of the refcrence committee to which his report was assigned are as follows:

1. That changes in the rules and regulations of the requirements of the Specialty Boards should be considered, so that a year or more of general practice should be one of the requisites for entering a specialty. It was recommended and adopted that a committee be appointed by the Board of Trustees to confer with a committee from the Advisory Board for Medical Specialties, and to report to the House at its meeting next June, the reactions to this suggestion.

2. Commercialism in medicine was discussed in great detail by the President, and constituent societies were urged by be adamant in disciplining members who persist in unethical practices.

3. Component county societies were urged to establish more rigid ethical requirements for membership, even to the extent of formulating an entrance examination in medical ethics for each applicant for membership in that society.

4. That all medical schools be urged to give lectures on medical ethics and medical traditions. The chapters of the Student American Medical Association can be potent factors in inculcating the doctrines of ethics during the training of the young physician.

5. The House of Delegates went on record as disapproving various types of business arrangements between pharmacists and physicians such as was unearthed lately in Greater New York area.

6. The imminent danger of socialization and socialized medicine being brought to us thru sponsorship of the I.L.O. was emphasized, and the united support of the American Medical Association and its members in helping the World Medical Association defeat the attempts of the I.L.O. body was urged and supported by the House of Delegates.

In the report of the Reference Committee on Reports of the Board of Trustees, several items of intrest and importance were adopted, such as

1. The public and professional relations of our Association are being strengthened and expanded by the establishment of laison with other professional and non-professional organizations.

2. A search is being conducted for the acquisition of suitable property by purchase to house the A.M.A. Washington, D.C. office.

3. Approval was given, and the constituent societies and members were urged to lend active support to the Reed-Keogh Bills which will be introduced into Congress again. These bills have our approval. They will affect possibly 10 million self employed individuals, including physicians, permitting retirement pensions plans, with concomitant deductions in income tax during income producing years.

4. Approval of the actions of the Board of Trustees in limiting the tenure of office for members of the Standing Committees of the House, according to a directive from the House at its June meeting, 1952. Hereafter no member can serve for more than two consecutive terms of five years each.

5. A review of the extent and scope of the endeavors of the various Councils, Committees and Bureaus of the A.M.A., and under direction of the Board of Trustees were reviewed, and their reports adopted. These reports indicate varied types of projects under various spheres of activity.

The recommendations received and adopted thru a reference committee from the Council on Industrial Health are noteworthy and should be mentioned. These are:—efforts to bring the general practitioner into the industrial medical field as a practical method of solving the health problems in thousands of small plants; identifying the work of this council more closely with industrial relation committees of the various state societies; formation of a consulting committee to the Council to be concerned with occupational cancer; continuation and intensification of the

studies of the special health problems of older workers; mobilization of the best available advice and consultation in the matter of good vision and hearing in industrial workers; and the promotion of the steps taken to set up working relations with the American Bar Association in the matter of providing more effective means of improving medicolegal relations in workmen's compensation administration.

With reference to further reports of the Board of Trustees and the Council on National Emergency Medical Service, the following were adopted thru report of the appropriate reference committee;—

1. Endorsement of the continuation and expansion of such civilian medical advisory committees and boards as are necessary to insure that governmental medical plans and programs serve the best interest of the federal government and civilian medical care, and that the House of Delegates respectfully urge the President-Elect of the United States and appropriate department heads, when appointed, to take such action as may be required to effect the establishment of civilian medical advisory and coordinating committees as a functioning part of such agencies as the Department of Defense, the National Security Resources Board, the Office of Defense Mobilization, the Federal Civil Defense Administration, and the Selective Service System.

Furthermore, since the Board of Trustees and several State Resolutions were pointed toward the adoption of policies of American Medicine toward the Doctor-Draft Law which will expire July 1, 1953, many hours were spent in reference committee hearings on this subject. It was recognized that there were many aspects to the problem and supply of medical services to our military personnel, and that the present Public Law 779, the so called doctor draft bill, has been found to contain, in practice, numerous inequities, so the Reference Committee attempted to evolve some type of acceptable statement of policy for the House to adopt. It recognized the responsibility of American Medicine in this field, so that our profession must continue to support whatever measures are necessary to provide essential medical care to the armed services. The House of Delegates recognized its responsibility in this sphere and adopted the following framework of policy within which the Board of Trustees and Officers may operate until the next meeting of the House of Delegates. These directions to the Board of Trustees and to the Council on National Emergency Medical Service are as follows:

1. To follow closely all developments, both national and international, which might affect the quantitative requirement of the armed forces for medical officers.

2. To support legislation designed to provide the number of medical officers required to care adequately for the health needs of uniformed armed forces, which will, so far as consistent with the public interest, guard the following principles:

A. Physical requirements for medical officers should be realistically revised to the end that physicians with physical defects be utilized with appropriate assignments.

B. More effective recruitment methods should be developed for career personnel in military medicine.

C. The greater use of civilian doctors of medicine and civilian hospital facilities, whenever and wherever feasible, in the care of both military and nonmilitary personnel and dependents of military personnel, should be encouraged.

D. Since the total number of doctors of medicine available to the various governmental agencies and for the general health needs of the nation, is an irreplaceable pool of relatively fixed proportions, it must be utilized in the most economical and efficient manner.

E. Conditions of service in the several governmental agencies should be sufficiently uniform to avoid undue competition for medical personnel.

F. Consideration should be given to an equitable point system in the induction of doctors into the medical departments of the armed forces.

G. In regard to the operation of the existing doctor-draft law, the President of the U. S. A. should be requested by the A.M.A. to defer any call-up of priority 3 physicians under Public Law 779 until the Selective Service System and the Department of Defense have completed the processing of all physicians in priorities 1 and 2 and have called to active military service all physicians in these groups except those very occasional individuals whose further deferment is essential to the nation's health, safety and interest.

In answer to protests originating in various quarters at various times regarding the provisions for medical care of persons regardless of ability to pay, the House adopted the following principles: The prime object of the medical profession is to serve humanity, regardless of reward or financial gain. Implementation of this principle has been a number of county medical societies who have successfully conducted and publicized programs offering to provide the services of physician to anyone unable to pay. The House concurred in the suggestion of the Board of Trustees that such medical care programs be endorsed, that other constituent medical societies be encouraged to organize and promote similar campaigns embodying the principles of such programs, and that these campaigns be made known to the public thru every effective medium of communication.

The report of the Special Committee appointed one year ago to study all phases of Federal Medical Services was available to a reference committee and to each member of the House. It is a very voluminous report, and is to long to publish in this report. It has been available as a separate publication since Jan. 1, this year.

Long hours were spent in reference committee hearings, and in open floor discussion of the conclusions contained in the report. Members of the House, representatives of the American Legion, and Admiral Boone, Chief Medical Director of the Veterans Administration, had the floor to present their ideas. Chief among the subjects for debate were (1) Medical and hospitalization benefits for veterans with non-service connected disabilities. (2) Medical and hospitalization benefits for dependents of service personnel, and (3) The transfer of seriously disabled service personnel from service hospitals to Veterans Administration installations.

Actions on the first subject were as follows: 1. A clear congressional definition of the extent of the government's responsibility for furnishing medical care with particular reference to the treatment of veterans with non-service connected disabilities and the dependents of service personnel (2). With reference to number 2, it was agreed that no action could be taken at this time, and that policies should be deferred until such time as present studies of this subject are completed. With respect to number 1, that is, hospitalization of non-service connected disabilities, it was agreed that the Veterans Administration should not provide benefits to veterans for non-service connected disabilities while they have in effect a prepaid hospital and/or medical care plan. These should be treated in civilian hospitals. The House concurred in the statement of the reference committee that (a) Veterans with peacetime or wartime service whose disabilities or diseases are service-connected or aggravated, and (b) Within the limits of existing facilities to veterans with wartime service suffer from tuberculosis or psychiatric or neurological disorders of nonservice connected origin, and who are unable to pay expenses of necessary hospitalization; these two groups should be given fundamental consideration by the Veterans Administration for hospitalization in Veterans Facilities, and the limiting of hospital care for these two categories of patients is sound. On the other hand, it was stated that—"the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service connected disabilities should be discontinued, and that the responsibility for care of such veterans revert to the individual and the community, where it rightfully belongs." This arrangement, however, cannot be met, without the cooperation of the Congress, the veterans organizations, and medical profession. Therefore, the reference committee recommended to the House that the only honorable, equitable and reasonable way to approach this important problem would be for the A.M.A., the American Dental Association, the American Hospital Association, the Veterans Organizations, the Department of Defense, and the Veterans Administration to sit down together and try and reach reasonable conclusions for appropriate action from agreed upon data rather than to take any precipitatant action now. It can be said that a representative of the American Legion, in a prepared statement before the House of Delegates, gave a very clear statement of the position of th Legion in regard to the "chiselers" who are occupying beds in veterans hospitals with non-service connected disabilities, and of the willingness of the Legion to cooperate in an attempt to eliminate this evil. The House felt very encouraged to have these statements from the American Legion in support of its policy making with respect to non-service disability cases. With respect to item 3 above, it was

agreed that the principle of transferring seriously disabled service personnel from service hospitals to veteran administration installations should be continued, and that every effort be made to accomplish maximum implementation of this program.

Other matters of interest to the profession adopted by the House are as follows:

1. Accepted from the Council on Constitution and By-Laws numerous additions, deletions, changes of wording, etc., for the purpose of stream-lining the structure of the entire A.M.A. constitution and by-laws. Changes made are, for the most part, editorial and changes in format, and not any important change in policy.

2. Received a progress report of the study being given by the Council on Constitution and By-Laws for the purpose of Re-evaluation of the Principles of Medical Ethics, so that these can be improved for the medical profession in general and for the Judicial Council in particular.

3. Received and commended the Council on Medical Service for its report of its many activities, together with the delineation of the activities of its seven committees, in the many types of studies being made or completed with various aspects of medical care; from the pre-payment plans to the care of the indigent.

4. Adopted the intent of several resolutions dealing with medical malpractice laibility insurance, and directed the Board of Trustees delegate an appropriate Council or Bureau to make a continuing study of this problem and submit a progress report at its next meeting.

5. Approved a resolution which disapproved programs of Participation in Scientific Experiments by Inmates of Penal Institutions.

6. Approved a resolution directing the Board of Trustees thru its Commission for the Improvement of the Care of the Patient, to undertake a study of all phases of the training and availability of persons in the nursing profession, including those in the practical or vocational field of nursing.

7. The House of Delegates, after discussion, rejected the report of a reference committee and adopted in principle a resolution from Texas which urged the United States to withdraw from the International Labor Organization because of the avowed intention of this group to foster socialism upon this country, including medicine, by having the Senate of this country affix its confirmation to the L. L. O.'s Social Security Program, and thus nullify our own Constitution by international treaty.

8. The House approved a resolution endorsing the creation of a Federal Department of Health with cabinet status.

9. Approval was suggested to a contemplated proposal in the national Congress which, if passed, will outlaw the function of the U. S. Senate to make treaty with an international authority, which, in effect, would supercede or be in conflict with our own Constitution of the U. S. A.

The members of our Association are referred to the Journal of the A.M.A., issue of December 27, 1952, for a complete abstract of the proceedings of the House of Delegates, pages 1676 to 1707, wherein will be found many other items of interest not touched upon in this brief report.

Respectfully submitted
J. D. Hamer, M. D., Delegate
Phoenix, Arizona

———o———

FEDERAL AID TO MEDICAL EDUCATION

A bill for federal aid to medical education was rejected by the Senate in the last Congress and sent back to committee. Similar legislation was never voted out by the House Interstate and Foreign Commerce Committee. Several medical school authorities have testified at past hearings that large sums of money are needed to finance the cost of medical education if the schools are to maintain high standards and increase enrollment. The AMA contends that *only if private and state support fails* should schools look to the federal government for aid. Further, the Association believes federal assistance, if necessary, should be in the form one one-time construction grants for building and facilities, similar to the Hill-Burton hospital program. Bills on this subject will certainly be introduced again.

AMA Washington Letter

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES
Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

MEMO TO BUSY PHYSICIANS

By C. W. Dudding, Chairman, Executive Committee, Arizona Pharmaceutical Assn.

Seems like laws and more laws are continually being enacted relative to the treatment of our sick and to the distribution of medicines for them.

For instance, the federal law regulating the sale and distribution of foods, drugs and cosmetics. When the original measure was passed in 1906 the methods of treatment of patients was much as it had been for the past hundred years or more. We did not have any of the so-called new drugs of a little later date, such as the mercurials, the vaccines, the antitoxins, etc. The law dealt mainly with the galenicals which had been in use during the past century.

Then in 1938, the Congress saw fit to pass a new and broader measure, encompassing the advances made in the medical sciences of that period and providing also for a rule of regulative procedure, whereby an administrator, by regulation, enacted many other things for us to follow.

This law was amended by the so-called Durham-Humphrey bill, passed by the Congress in October, 1951. It became effective April 26, 1952 on most items with an additional year, granted manufacturers, to comply with the new labeling restrictions.

Our good friend (?) Oscar Ewing, Administrator of the Federal Security Agency was supposed to promulgate regulations last February relative to the handling of certain drugs. He DID promulgate these regulations but, when the time came for their adoption he hesitated to make them operative. We are still awaiting the adoption of certain provisions and, in the meantime, have only the law to guide us.

Certain things we do know though and, by far of greatest importance to busy physicians and pharmacists, is the change in the law regarding prescriptions. Under the old statute it was necessary for the pharmacist to have a new prescription every time the patient asked for a refill. This prescription had to be in written form signed by the physician and applied to the so-called "safe" drugs as well as the dangerous drugs.

The new law provided two classifications for drugs: 1st. Those suitable for use only under the care of physicians. These had to be labeled "Caution; Federal Law prohibits dispensing except on a prescription." 2nd. Those drugs considered "safe" for self-medication. The amendment made safety the criterion in determining whether a drug fell into the Rx category or otherwise.

The new definition for a prescription provided, in addition to written Rxs, for those received by phone or orally and immediately reduced to writing by the pharmacist. It also provided that the AGENT of the physician could transmit the prescription as well as the physician. If the drug required was not in the "dangerous" category the pharmacist could re-fill it without authorization BUT if it was one of the so-called dangerous drugs it was necessary for the pharmacist to contact his physicians for authorization to re-fill.

Narcotics regulations continue in effect as they have been in the past, under the Harrison Act.

NOW HERE'S THE RUB. You have been bothered no end during the past year with pharmacists calling you for that authorization. Doctor, its the law and WE just have to do it. This takes a world of YOUR time and in addition, it also takes a world of the pharmacists time and causes the patient to waste a certain amount of his time as well. At times the patient grumbles about the delay, wanting to know what the government has to do with his prescription.

The solution to much of this is quite simple. There is a little boxed area on the bottom of practically every Rx blank that states "May be refilled —— times" or N.R. (non-repetatur). In going over many prescription files we find that only too few of you are making use of this space. Would it not be good for you and your patient at the time you write the original prescription, to indicate in that space, your future instructions? In many cases you would be saved the necessity of phoned requests from your pharmacist, with the attendant loss of time. If you did not wish to have it relled, that portion of the box provided could be checked.

Just in case there is no space provided on your particular blanks the problem could be solved by writing the initials "N.R." if you do not wish it refilled, or the words "Refill – times." Those instructions would be followed by your pharmacist and they are legally O.K.

How about it? Can we count on you for this

assistance? Thanks so much for all of your cooperation and we hope you will bear with us when occasion demands that we must ask for refill approval.

——o——

AMEF '52 FUNDS TOTAL MORE THAN $886,430

Contributions to the American Medical Education Foundation in 1952 totaled more than $886,430. This includes an American Medical Association grant of $500,000 voted by the House of Delegates in December, 1951, at Los Angeles. In all, 6,739 contributions have been recorded from 6,697 individuals, 11 laymen and 31 organizations.

Distribution of Class A grants for the 79 medical schools in the country was made in August . . . $15,000 for each of the 72 four-year schools; $7,500 for each of the six two-year schools, and $11,250 for one three-year school.

Particularly encouraging . . . contributors up 4,863 over 1951 . . . total receipts up $140,513 over 1951.

A.M.A. News Notes

——o——

AMA ENCOURAGES "MEDICAL CARE FOR ALL" PROGRAMS

Medical societies were called upon to establish programs providing the services of a physician to anyone unable to pay for it at the AMA's House of Delegates session in December. Since a number of county medical societies for several years have successfully maintained such programs, the House resolution urged the American Medical Association to encourage constituent state medical societies "to organize and vigorously promote similar campaigns embodying the principles of such programs." Medical societies were urged to publicize such programs "through every effective medium of communication."

A.M.A. News Notes

——o——

DOCTOR-DRAFT LAW EXTENSION

As a short-range problem at least, the doctor-draft law probably will present the medical profession with an acute legislative issue this year. Last Congress, a few details were straightened out: the law was extended one year, to next July 1; the $100 per month special pay was continued, and length of service was extended to 24 months. Now the question is *should the law be extended again?* If so, what changes should be made? Also, are military doctors spending too much of their time on military dependents and civilians who might obtain medical care privately? The military planners maintain they need a doctor-draft law or similar compulsory machinery to meet requirements. AMA representatives are meeting with military officers and attempting to get the answers to some of these questions. Until more information is furnished by Defense Department, AMA's official position neither supports nor opposes extension of the law. This is another subject that you will hear much about between now and next July 1, when the present doctor-draft law is scheduled to expire.

AMA Washington Letter

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

Monty Lebert's Nursery

And

Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics

We Specialize In Planter Box Materials

531 W. Thomas Road Phone CR 4-0211
Phoenix, Arizona

CIVILIAN MEDICAL CARE FOR ARMY PERSONNEL

One of the most important and necessary services furnished the American soldier is adequate and timely medical care and treatment, including hospitalization. This service is provided for Army personnel in the United States generally by the various medical treatment facilities established at Army installations throughout the country. There are many localtions, however, where Army or other federal medical activities are not available. In cases of this nature the military depend solely on civilian physicians, clinics, and hospitals. With the expansion of the Army and the development of Army personnel in practically all points in the United States, either on duty, travel, or leave status, the continued cooperation of civilian physicians and agencies is of the utmost importance in providing adequate medical service to the U. S. soldier in time of need. This is particularly indicated in the Sixth Army Area, which includes the vast area of eight Western states.

Certain criteria and procedures have been established in connection with furnishing medical service to Army personnel by civilians. These criteria define the conditions under which individuals of the Army may be authorized civilian medical care at government expense. These procedures include methods to obtain payment for treatment and hospitalization of Army personnel by civilian medical agencies.

Civilian medical care, other than elective, at the expense of the Army is authorized for Army personnel on active duty when these personnel are on a duty status or when they are absent from their place of duty if they are on authorized leave or authorized informal leave (pass) status. Applicants for enlistment in the Army also are authorized necessary civilian medical care at the expense of Army funds while they are being processed for enlistment or induction into the Army. Payment for medical expenses incurred by Army personnel who are absent without leave is not authorized. Such obligations are the responsibility of the individual concerned.

Normally, civilian medical care for Army personnel is authorized when there are no other federal medical treatment facilities available. First aid or emergency treatment is authorized at any time, notwithstanding the proximity of Army or federal medical treatment facilities. Surgical operations should not be performed without prior approval of military authorities unless indicated as an emergency procedure.

Medical care for dependents of military personnel from civilian sources at Army expense is not authorized. Such obligations are the responsibility of the dependents concerned or their sponsors.

Normally, local commanders will furnish the civilian medical agencies with prior written authority for ordinary medical care to Army personnel under his jurisdiction. In such cases prior arrangements with the civilian medical agency will be made by the individual or by a proper military authority. Difficulties arising from civilian medical attendance usually originate with the emergency case. If the civilian medical agency is presented with an Army emergency case, it is of the utmost importance that the nearest military command be immediately notified giving the individual's name, organization, nature of illness or injury, and statement of the practicability of transporting the patient to an Army hospital. The civilian agency or physician then will be advised without delay as to procedures to be followed. If such information is not satisfactory, the civilian agency may contact the Commanding General, Sixth Army, Attention: Surgeon.

Bills for authorized medical care and treatmen of Army personnel should be submitted to the Commanding Officer of the organization to which the patient belongs or to the military authority who provided authorization for the medical service. If the location of these individuals is not readily known, or if such military commanders authorizing treatment have moved to another station, or if any other difficulties are encountered concerning payment, the invoice should be sent to the Commanding General, Sixth Army. The bill should show the full name, rank, and service number of the patient, place, and inclusive dates of treatment, diagnosis, and charges, all itemized separately. The duty status of the patient at the time of illness or injury also should be shown, such as duty, leave, or pass. Payment will be expedited if the following certificate is typed on the bill and signed:

I certify that the above charges are correct and just; that payment therefor has not been received; that the services were necessary in the care and treatment of the person named

above; that the services were rendered as stated; and that the charges do not exceed those customarily charged in this vicinity.

(Signature of Payee) (Title or Capacity)

---O---

FIRST WORLD CONGRESS ON FERTILITY AND STERILITY

The First World Congress on Fertility and Sterility will be held on May 25-31, 1953, at the Henry Hudson Hotel in New York City. This Congress is sponsored by the International Fertility Association with the cooperation of the American Society for the Study of Sterility.

Twenty-three scientific sessions are to be held, which will embrace the entire field of fertility and sterility, including sessions dealing with socio-economic factors, psychosomatic aspects, and artificial insemination. The sessions will be conducted in English, French and Spanish, with the use of earphones and simultaneous translations, as in the United Nations meetings.

In addition to the scientific sessions there will be medical round table discussions, question and answer periods, scientific exhibits and motion pictures.

It is anticipated that 1800 scientists from 51 countries will attend the Congress making it the world's largest medical meeting devoted to problems of reproduction. This Congress will facilitate the exchange of ideas and information among doctors from the various countries, dealing with the very latest findings in fertility studies.

Since seats at the Congress will be at a premium, it is suggested that those who plan to attend write as soon as possible to the Chairman of the Local Arrangements Committee, 1160 Fifth Avenue, New York 29, New York, for advance registration.

---O---

HILL-BURTON HOSPITAL

The Washington Office of the American Medical Association reports that as of November 1, 1952, two new projects had been approved for Hill-Burton grants in the State of Arizona:

Located at Phoenix—Good Samaritan—at a total cost of $1,198,162 including federal contribution of $487,500—to supply 100 additional beds.

Located at Phoenix—Maricopa County—at a total cost of $247,000 including federal contribution of $100,000—to supply 100 additional beds.

Status of all Hill-Burton hospital construction in Arizona, including the above, is as follows:

COMPLETED AND IN OPERATION: Seven projects at a total cost of of $3,340,501, including federal contribution of $1,132,516 and supplying 246 additional beds.

UNDER CONSTRUCTION: Two projects at a total cost of $6,086,549, including federal contribution of $1,523,230 and designed to supply 375 additional beds.

APPROVED, BUT NOT YET UNDER CONSTRUCTION: Two projects at a total cost of $1,445,162, including $587,500 federal contributions and designed to supply 200 additional beds.

---O---

TAX DEDUCTIONS FOR RETIREMENT PLANS FOR SELF-EMPLOYED

For more than ten years corporations have been allowed to establish pension funds for their employees out of tax-free money. Last year a concerted effort was begun to have the same privilege accorded the *self-employed, including physicians.* A limit of 10% of income or $7,500 would be set on the amount to be placed in such funds annually, and the total could not exceed $150,000. Funds could not be withdrawn until death, retirement or disability, at which time tax would be paid on the money as received.

Public hearings were held by the House Ways and Means Committee late in the session, but no action was taken by the Committee. Active in support of the plan, in addition to the AMA, were the American Dental Association, the American Bar Association and a number of other groups representing the self-employed. During the Congressional recess much educational work was done with Representatives and Senators on this subject.

AMA Washington Letter

WANTED—Young Assistant
For General Practice and Surgery
LOUIS P. LUTFY, M.D.
301 W. McDowell Rd.
Phoenix, Arizona

Woman's AUXILIARY

WE HAVE HOMEWORK TO DO

On November 4th, 1952, the American people aroused from the dangerous apathy which had held them enslaved for twenty years. They went to the polls and demanded a change. They got a change, in the political party – but will they continue to fight for a change in the important issues—a return to good Government of, by and for the people; personal integrity in Government officials and restoration of the Freedoms and Liberties handed down to us by our forefathers when they founded our Republic on the Declaration of Independence and the Constitution of the United States?

This was the question embodied in the messages of the two guest speakers at the 9th Annual Conference for Presidents and Presidents-elect of State Auxiliaries to the American Medical Association, in Chicago, November 6th and 7th.

Arthur L. Conrad, President of the Heritage Foundation Printing Company, told us in no uncertain terms that, "As women we needed to do some housecleaning in the schools of our Nation. Socialism is rampant in the textbooks our children study and among the teachers who instruct them. They are no longer being taught the fundamental principles of Americanism. It is our duty," Mr. Conrad said, "to know what is being taught in our schools. We should insist on a high moral standard of Education so that our children may learn to choose good from evil. We should demand that every textbook teach loyalty to our Government and the importance and dignity of the individual in that Government. There is an ideological battle going on today in our American Schools for the hearts, minds and souls of our youth, which stems directly from the Kremlin. It is masked and insidious, but none-the-less potent. Stalin is concentrating on the youth of the world. His plan is 150 years old, as old as the Comunist Manifesto, and he is sure that time will see its fulfillment."

One of the books being taught to 7th and 8th grades in the schools throughout our land is "We Are the Government" by Mary Elting, an avowed member of the Communist Party. Is your child studying this book? Don't you think you should find out? Let's see if our Arizona schools have a clean slate.

The following books were suggested as "MUSTS" on the reading list of all true Americans and ones that should be on the library shelves of every school, to be read and studied by our young people.

"Remember These Things" by Paul Harvey; "The Key to Peace" by Clarence Manion; "Revitalizing a Nation' by Douglas MacArthur; and Compulsory Health and the Welfare State" by Melchoir Palyi. These books have been written for Americans by Americans and tell us what is happening to our great country and where we are heading—unless we begin to fight for our Freedom as did the Minute Men of 1776! They may be ordered through the A. M. A. Office, 535 N. Dearborn St., Chicago 10, Illinois.

Mrs. Oscar Ahlgren, National President of the General Federation of Women's Clubs, brought out in her stirring address, 'that women should take time out for thinking on problems of National importance. They have been given the credit for getting the large vote to the polls. Now they must be the ones to convince people that our Freedom must be won by each generation, that it cannot be taken for granted and that it is so easily lost if we are not constantly vigilant. Our children must be taught to love God and Country above all else and to know that our Constitution is not on trial, as the Communists would have them believe. It has been proved. We are the envy of the world, for in our consitutional rights are embodied all the things that peoples of war-torn, dictator ruled countries long to have. Yet in their envy they would drag us down to their level. This we must not let them do!"

Mrs. Ahlgren gave us these five attributes to live by and to pass on to our children:

1. Appreciation—for all the good things we enjoy as Americans.
2. Friendliness—toward all peoples, regardless of race, creed or color.
3. Ambition—for the general welfare—others as well as self.
4. Responsibility—to Home, Church, School, and Country.
5. Spirituality—to promote a religious renais-

sance to bring us back as a Nation to God.

Being a proud citizen of Indiana, as well as a citizen of the world, she quoted often from the legendary Hoosier Philosopher, Abe Martin, who says, "The reason a lot of parents ain't leadin' their children along the right road, is 'cause they ain't going that way themselves." Are we on the right road? The road that leads to good citizenship in the best country on earth? To quote from Paul Harveys book, "It is not easy to be a good citizen in a free country. The good citizens out-number the bad, but the bad ones are busier."

Let's get busy too! Let's do our Homework. Remember! We voted for a change—we must make it work so that our children may have a bright future.

For a complete report of the Conference, read your December BULLETIN.

Mrs. George S. Enfield
President-elect
Phoenix, Arizona

OSTEOPATHS TURNED DOWN AT BALLOT BOX

Dr. L. Fernald Foster, secretary of the Michigan State Medical Society, had this to say recently on the osteopaths' losing fight to get a foot-hold in the municipal hospital at Bay City:

"The first attempt in Michigan, if not in the United States, to gain entrance into an accredited, registered municipal hospital was boldly tried by osteopaths of Bay City through a proposed amendment to the city charter. This brazen bid for greater privilege and power, without the necessary background or education to back it up, was roundly defeated three to one by the voters of Bay City. The people, on November 4, cast 14,526 votes against the proposal, with only 5,633 in favor of the osteopathic scheme. The proposal failed in every precinct of Bay City.

"A review of this experience is being made and will be available upon request to any component society where a similar problem may arise."

Secretary's Letter

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

Successor To

PATHOLOGICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. W. Watkins, M.D., Consultant Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

It's time to roll up your sleeve...

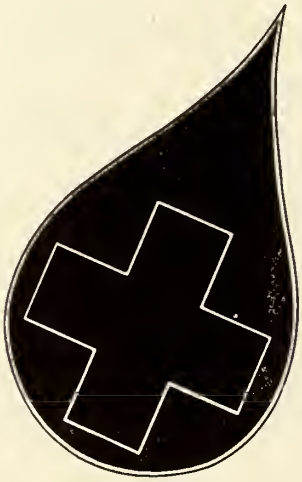


GIVE BLOOD NOW

CALL YOUR RED CROSS TODAY!

★ NATIONAL BLOOD PROGRAM ★

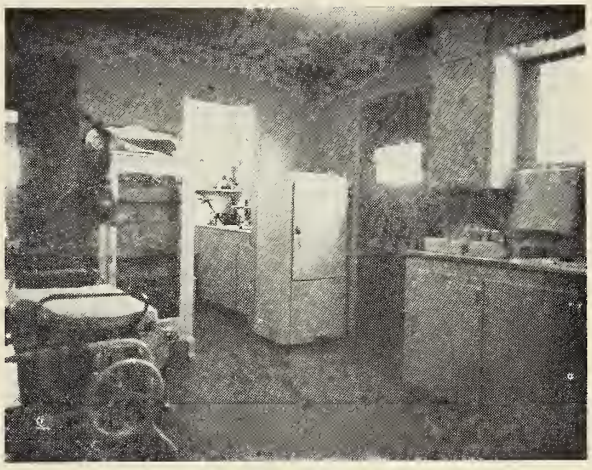
YOUR MAN OF DISTINCTION IS WEARING



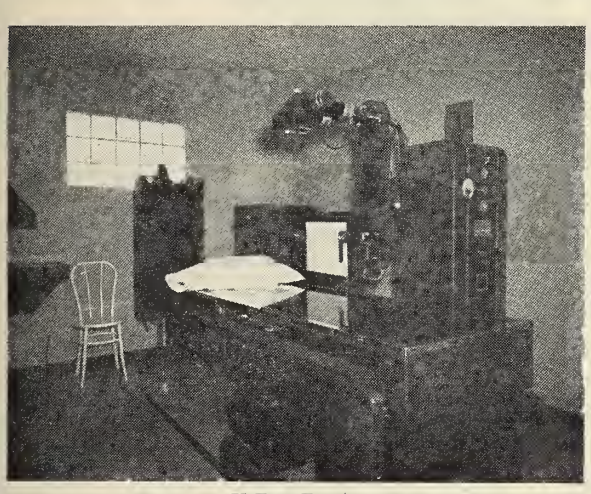
GLENDALE CLINIC



Front View of Glendale Clinic



Emergency Room



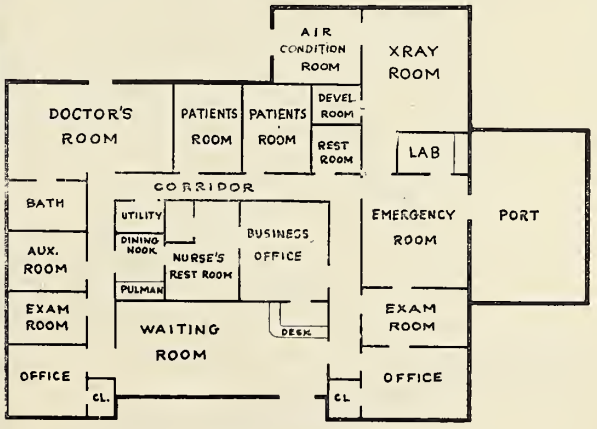
X-Ray Room



Dr. Fulk and two of his assistants



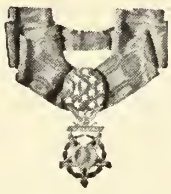
Reception Room



Floor Plans

MURL E. FULK, M.D.
PHYSICIAN and SURGEON
Telephone YEllowstone 7-7240 (Phoenix) Lateral 16 and Glendale Ave. Glendale, Arizona

2nd Lt. Joseph C. Rodriguez
U.S. Army
Medal of Honor





SIXTY YARDS TO GO. From atop the hill, near Munye-ri, Korea, the enemy suddenly opened up a withering barrage. The squad was caught; Red mortars began zero-ing for the kill. Lieutenant Rodriguez (then Pfc., with only seven months service) broke loose and dashed up the fire-swept slope, throwing grenades. Disregarding the fire concentrated on him, he wiped out three foxholes and two gun emplacements. Alone, he accounted for 15 enemy dead, led the rout of the enemy, and saved the lives of his squad.

"When you have to take chances to reach an objective, that's O.K.," says Lieutenant Rodriguez. "But when you can find a surer way to your goal, so much the better.

"That's why I was glad when I heard that people like you own *nearly 50 billion dollars* in U. S. Defense Bonds. I believe that a strong, *peaceful* America is our objective. And the *sure* way to reach it is through backing *our* strength with *your* strength by investing in Bonds!"

* * *

Now E Bonds earn more! 1) All Series E Bonds bought after May 1, 1952 average 3% interest, compounded semiannually! Interest now starts after 6 months and is higher in the early years. 2) *All maturing E Bonds* automatically go on earning *after maturity*—and at the new higher interest! Today, start investing in better-paying United States Series E Defense Bonds through the Payroll Savings Plan where you work or the Bond-A-Month Plan where you bank!

Peace is for the strong!
For peace and prosperity save with U.S. Defense Bonds!

The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

A PUBLIC SERVICE PROJECT · THE ADVERTISING COUNCIL · TENTH ANNIVERSARY

U. C. MEDICAL LIBRARY
FEB 25 1953
San Francisco, 4

Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA

ANNUAL
APRIL 26, 27, 28, 29

MEETING
TUCSON, ARIZONA



VOL. 10, No. 2 • FEBRUARY, 1953 • TABLE OF CONTENTS — PAGE V

in the hands of the physician

Often the critical evaluation of the drug to be administered is as important to the patient's recovery as is the diagnosis of his condition. In each case correct procedures can be determined only by the physician.

Chloromycetin is eminent among drugs at the disposal of the medical profession. Clinical findings attest that, in the hands of the physician, this widely used, broad spectrum antibiotic has proved invaluable against a great variety of infectious disorders.

The many hundreds of clinical reports on CHLOROMYCETIN emphasize repeatedly its exceptional tolerance as demonstrated by the infrequent occurrence of even mild signs and symptoms of gastrointestinal distress and other side effects in patients receiving the drug.

Similarly, the broad clinieal effeetiveness of CHLOROMYCETIN has been established, and serious blood disorders following its use are rare. However, it is a potent therapeutic agent, and should not be used indiscriminately or for minor infections—and, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 2 FEBRUARY, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

STAB WOUND OF THE BLADDER COMPLICATED BY WOUNDS OF THE SMALL INTESTINE AND MESENTERY 47
Lazarus Manoil, M.D., Phoenix, Arizona

MECKEL'S DIVERTICULUM 50
Jules L. Whitehill, M.D., Tucson, Arizona

CONSERVATIVE SURGICAL PROCEDURES IN THE TREATMENT OF PULMONARY GRANULOMAS 53
C. Thomas Read, M.D., Phoenix, Arizona

BASIC SCIENCE SEMINAR

PHYSIOLOGIC CONSEQUENCES AS THE RESULT OF INTESTINAL OBSTRUCTION 61
Jorge Ribeiro, M.D., Tucson, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 65

THE PRESIDENT'S PAGE

TRUMAN'S COMMISSION ON THE HEALTH NEEDS OF THE NATION 74
Thomas H. Bate, M.D., Phoenix, Arizona

EDITORIAL

THE SURGEONS RESPONSIBILITY 75

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX AND DRS. 77
Guillermo Osler, M.D.

NEWS ITEMS 72

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION ... 73

HILL-BURTON HOSPITAL CONSTRUCTION 73

WHAT THE DOCTOR SHOULD KNOW ABOUT PRESCRIPTION PRICING OR FACTS ABOUT PRESCRIPTION PRICING 80
C. W. Dudding, Chairman, Executive Committee, Arizona Pharmaceutical Ass'n.

ANNIVERSITY 82

WOMAN'S AUXILIARY

CIVIL DEFENSE NEWS 83
Mrs. Harry A. Cumming, Phoenix, Arizona

ORGANIZATION 82
Mrs. Brick P. Storts, Tucson, Arizona

DIRECTORY

SANATORIUM DIRECTORY XXIII
DRUGGISTS DIRECTORY XXVII
PHYSICIANS' DIRECTORY XXXII

Published monthly by the Arizona Medical Association. Business office at 426 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Thomas H. Bate, M.D. ..... President
15 East Monroe, Phoenix, Arizona
Edward M. Hayden, M.D. ..... President-Elect
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... Vice-President
1313 N. 2nd Street, Phoenix, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Harry E. Thompson, M.D. ..... Speaker of House
435 N. Tucson Boulevard, Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
15 East Monroe, Phoenix, Arizona
Kent Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Donald E. Nelson, M.D. ..... Southeastern District
509 — 5th Avenue, Safford, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 — 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Harry T. Southworth, M.D. ..... Past President
P. O. Box 788, Prescott, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Hilary D. Ketcherside, M. D., Phoenix; Harry E. Thompson, M. D., Tucsou; Otto E. Utzinger, M. D., Ray.

HISTORY & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Walter Brazie, M. D., Kingman; Martin G. Fronske, M. D., Flagstaff; Juan S. Gonzales, M. D., Nogales; Charles B. Huestis, M. D., Hayden; Frederick W. Knight, M. D., Safford; Charles H. Laugharn, M. D., Morenci; Harry B. Lehmberg, M. D., Casa Grande; Claude H. Peterson, M. D., Winslow; Robert E. Rider, M. D., Yuma; Reed D. Shupe, M. D., Phoenix; William B. Steen, M. D., Tucson

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., [illegible]

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Guy B. Atonna, M. D., Douglas; Joseph Bank, M. D., Phoenix; David E. Engle, M. D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1952 - 1953

President ..... Mrs. W. F. Schoffman
36 North Country Club Drive, Phoenix
President Elect ..... Mrs. George S. Enfield
335 West Camhridge, Phoenix
Vice-Pres. 1st (organization) ..... Mrs. Brick Storts
El Encanto Estates, Tucson
Vice-Pres. 2nd (Program) ..... Mrs. Hugh Thompson
135 Palomar Drive, Tucson
Treasurer ..... Mrs. R. Lee Foster
2215 North 11th Avenue, Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. L. L. Tuveson
346 West LaMar Rd., Phoenix
Director 1 Yr. ..... Mrs. J. H. Allen
829 Country Club Drive, Prescott
Director 1 Yr. ..... Mrs. R. W. Rudolph
3935 E. Miner, Tucson
Director 2 Yr. ..... Mrs. T. C. Harper
175 South 3rd Street, Globe
National Representative ..... Mrs. Jesse D. Hamer
1819 North 11th Avenue, Phoenix
Bulletin ..... Mrs. Hiram Cochran
2716 East 4th St., Tucson
Civil Defense ..... Mrs. Harry Cumming
517 W. Rose Lane, Phoenix
Finance ..... Mrs. Paul S. Causey
38 West Camelhack Rd., Phoenix
Health Education ..... Mrs. Roy E. Hewitt
130 Camino Miramonte, Tucson
Historian ..... Mrs. C. Selhy Mills
148 West Rose Lane, Phoenix
Legislation ..... Mrs. George A. Williamson
537 West Rose Lane, Phoenix
Parliamentarian ..... Mrs. V. G. Presson
1317 North Stone, Tucson
Publicity ..... Mrs. John R. Green
2221 North 40th Street, Phoenix
Public Relations ..... Mrs. J. K. Bennett
2325 East Waverly, Tucson
Revisions ..... Mrs. Delbert Secrist
2527 East 3rd St., Tucson
State Nurses Loan Fund ..... Mrs. Carlos C. Craig
727 Encanto Drive SE, Phoenix
Today's Health ..... Mrs. Paul Jarrett
501 East Pasadena, Phoenix
Nominating Chairman ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix

GILA COUNTY

President ..... Mrs. I. E. Harris
Box 1296, Miami
Vice-Pres. ..... Mrs. Nelson D. Brayton
823 Merritt, Miami
Sec.-Treas. ..... Mrs. Wm. E. Bishop
605 South 3rd Street, Globe

MARICOPA COUNTY

President ..... Mrs. Archie E. Cruthirds
60 E. Country Club Dr., Phoenix
Pres.-Elect ..... Mrs. Paul Jarrett
501 E. Pasadena, Phoenix
1st Vice-Pres. ..... Mrs. Robert Cummings
5830 Arcadia Lane, Phoenix
2nd Vice-Pres. ..... Mrs. C. Selhy Mills
148 West Rose Lane, Phoenix
Rec.-Sec. ..... Mrs. A. I. Ramenofsky
916 E. Cambridge, Phoenix
Cor.-Rec. ..... Mrs. Rohert Price
335 West Wilshire, Phoenix
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 17th Street, Phoenix

GRAHAM COUNTY

President ..... Mrs. Frederick W. Knight
Safford
Vice-Pres. ..... Mrs. Noel Grey Smith
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hollis H. Brainard
328 N. Country Club Rd., Tucson
Pres-Elect ..... Mrs. Hugh C. Thompson
135 Palomar Drive, Tucson
1st Vice-Pres. ..... Mrs. Darwin Neuhauer
3017 E. Loretta Drive, Tucson
2nd Vice-Pres. ..... Mrs. Jackson Pyre
4141 East Killmer, Tucson
Rec.-Sec. ..... Mrs. Phillip G. Derickson
2841 E. Exeter Dr., Tucson
Cor.-Sec. ..... Mrs. David E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th Street, Tucson

PINAL COUNTY

President ..... Mrs. J. B. Tucker
Box 1042. Casa Grande
Vice-Pres. ..... Mrs. G. H. Walker
Box 1225, Coolidge
Sec.-Treas. ..... Mrs. R. Z. Collings
Box 475, Casa Grande

YUMA COUNTY

President ..... Mrs. Charles S. Powell
698 Ninth Avenue, Yuma
Vice-Pres. ..... Mrs. John F. Stanley
201 1st Ave., Yuma
Sec.-Treas. ..... Mrs. John J. Kloby
Box 1590, Yuma

YAVAPAI COUNTY

President ..... Mrs. Joseph P. McNally
208 Grove Ave., Prescott
Vice-Pres. ..... Mrs. M. W. Phillips
829 Flora Ave., Prescott
Secretary ..... Mrs. E. C. Geeve
Whipple Barracks, Whipple, Arizona
Treasurer ..... Mrs. Wm. R. Shepard
Hassayampa Country Club, Prescott

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 2 FEBRUARY, 1953

Original ARTICLES

STAB WOUND OF THE BLADDER COMPLICATED BY WOUNDS OF THE SMALL INTESTINE AND MESENTERY

Lazarus Manoil, M.D.
Phoenix, Arizona

INTRODUCTION:

Bladder wounds are encountered very infrequently in civil practice as shown by the records of our large hospitals. Even in war, the condition is met far less commonly than might be supposed. The anatomical location of the bladder, protected as it is by the bony pelvis, is such as to render it peculiarly immune to wounds and injury.

Bartels in 1878 found only two cases in a total of 16,711 surgical admissions to St. Bartholomews Hospital between 1869 - 1875. Stevens and Delzell reported in 1937 twenty-seven cases of bladder injury that had been seen in the Urological Department of the Bellevue Hospital during the previous twelve years. These constituted forty-five percent of all patients with bladder injuries who were admitted to all the services of the hospital during the period.

Stab wounds of the bladder can and do occur, especially when the bladder is distended. This is a report of such a case, complicated by multiple injuries to the small intestine and mesentery.

REPORT OF A CASE:

J. B., a 34 year old negro male, was admitted to the Emergency Surgical Service at Memorial Hospital on September 30, 1951 with evisceration of the small bowel. The complete history was unobtainable at the time, but essential facts of the case were that he was stabbed with a sharp knife in the lower abdomen about one hour before admission. He had been at a dance where he consumed large amounts of beer. He appeared to be in moderate shock. Physical examination disclosed a well-developed and well-nourished colored man with evisceration of the small bowel through an apparently small incision to the left of the suprapubic area. The intestines were matted with blood and dirt. Blood pressure on admission, 85/40; heart sounds, regular, of good quality, rate 92. The patient was given two units of plasma and oxygen to combat shock and Wangensteen Suction to empty the stomach while the operating room was being prepared. Surgery was started within one hour after admission. Proper preparation of the operative field was not satisfactory because of the eviscerated bowel. Examination of the extruded ileum disclosed the presence of nine small perforations of the lumen and two small perforations of the mesentery. These were closed with Lembert fine silk sutures. Examination of the laceration of the abdominal wall disclosed a tear three inches long through which the extruded bowel could not be replaced in the abdominal cavity. This laceration was extended upwards to enable adequate exploration of the lower abdominal contents and to permit return of the extruded bowel. Examination disclosed a small amount of fecal matter, clotted blood and some liquid with a smell suggesting urine. The descending colon and sigmoid appeared to be intact but examination of the bladder disclosed a tear in the dome about two inches long. The walls of the bladder were grasped with Allis forceps and the bladder

cavity then cleaned out with aspiration and sponges. A small cyst was noted on the wall of the bladder close to the left ureteral opening which was not disturbed. A retention Pezzer catheter was then inserted into the bladder and the tear was then closed in two layers, chromic #0 for the mucosa and fine silk for the outer serosa layer. The prevesical space of Retzius was then cleaned and all bleeding controlled. A small Penrose drain was inserted in this area. A Penrose drain was also placed in the lower abdominal cavity and pelvis along with 10 grams of sulfathiazole crystals. The abdomen was then closed in layers, chromic #1 for the peritoneum, chromic #1 for the fascia and clips for the skin. The patient was given 1,000 cc. of blood during the operation which he stood very well and was returned to the ward in good condition. He was placed on penicillin and streptomycin, Wangensteen Suction for three days and the usual supportive treatment. Convalescence was uneventful. The drains were removed on the third postoperative day and the skin clips on the fourth day. The wound healed surprisingly well by primary union considering the lack of adequate preparation and its dirty condition at the onset. On the fourth postoperative day he had a voluntary bowel movement. He was transferred to the County Hospital on October 4, 1951, the fifth postoperative day, for further treatment. On October 10, 1951, the eleventh postoperative day, the suprapubic retention catheter was removed. The patient was able to void voluntarily the following day. Catheterization and irrigation of the bladder revealed no blood or large amounts of residual urine. He was discharged from the County Hospital on October 17, 1951, the eighteenth postoperative day and was last seen in my office on November 20, 1951 at which time he had no complaints referable to the gastro-intestinal or genito-urinary tracts. He was gaining in strength and planned to return to work the following week.

COMMENT:

The dangers from urinary extravasation and fecal contamination constitute the chief dangers of wounds of the bladder associated with injury to the intestines. The diagnosis of bladder injury is difficult but must be considered in all stab wounds of the lower abdomen with evisceration of the bowel. On exploration of the pelvis after replacement of the intestine, inspection of the bladder as well as other organs will reveal whether injury is present. Immediate surgery is therefore indicated to correct the defects and to clean the areas without further contamination. Suprapubic drainage of the bladder and drainage of the prevesical space of Retzius and contaminated abdominal cavity seem advisable to lower morbidity and mortality.

Fullerton(2) presented a study of fifty-three cases of bladder wounds which he saw at the Base Hospitals in World War I. Seventy percent of these were complicated by injury of the intestine or bone or both. In this group there were four cases of intraperitoneal wounds of the bladder and intestine. The main features of these cases reported were as follows:

(1) Resection of four feet of intestine with end to end anastomosis for multiple perforations (eleven) and two tears in the mesentery. A piece of shell in the bladder was removed and the bladder sutured. The abdomen was closed with a pelvic drain. A catheter was passed every four hours and the patient was passing urine normally in one week. The patient recovered.

(2) Bullet entrance wound right buttock. There were six perforations of the ileum closed by suture. Perforations of the bladder was closed with a double row of catgut sutures. The abdomen was closed. The prevesical space was explored and disclosed another small hole in the anterior wall of the bladder. This also was closed with a double row of catgut sutures. The space of Retzius was drained. The patient passed urine naturally without difficulty after the operation. There was some hematuria and pain two days postoperatively. X-ray showed a bullet in the bladder wall. This was removed by cystoscopy and forceps pushed through the wound of the anterior wall of the bladder. There was very little leakage from the wound. The patient was evacuated to England after two weeks of satisfactory convalescence.

(3) Laparotomy wound disclosed blood in the peritoneal cavity. One perforation of the ileum near the caecum closed with sutures and a group of perforations distant from the caecum resected. A missile was found in the perforated bladder and removed. The bladder was drained suprapubically, the rectovesical pouch also was drained. The patient was evacuated to England with a small drain in the bladder doing well.

(4) Bullet entrance wound at coccyx. A missile passed through the rectum and bladder and out through the suprapubic region. Suprapubic cystostomy and ileocolostomy were done at the clearing station. One month later, the patient was passing most of the urine per urethra. The wounds were almost healed in another month.

Sandrey and Mogg(3) reported in 1944 a series of five cases of wounds of the bladder seen at the Royal Naval Hospitals, only one of which, a rectovesical impalement, was not due to enemy action. They felt, 1) such wounds should be closed as soon as possible to avoid unnecessary high mortality and morbidity consequent to unsutured perforation of the gut; 2) suprapubic drainage plays an important part in the healing. The tied-in catheter never provides adequate drainage and its use is strongly deprecated; 3) Free drainage of prevesical cellular tissue adjacent to the perforation of the bladder is an essential part of treatment whether extravasation of urine has occurred or not.

Michels,(4) reporting for the surgical teams of which he was a member in Italian, French and German Theaters from January 1, 1944 to May 8, 1945, had one hundred fifty-five (4.9 per cent) bladder lesions among 3,154 wounded individuals having abdominal pathology. Of the one hundredy fifty-five cases, the correct diagnosis was made preoperatively or at surgery one hundred forty-nine times. Six cases were overlooked, two of these died the first postoperative day and the bladder wounds were found at autopsy. Three of the six developed urinary fistula (thigh, abdominal wound and to the rectum) and were later subjected to cystostomy with good results. The sixth passed a foreign body per urethra and recovered following insertion of an indwelling urethral catheter. One hundred thirty-four of the one hundred fifty-five cases (eighty-six percent) had bowel lesions in addition to the bladder damage. The mortality rate in cases having bladder lesions depends mainly on how much bowel damage co-exists. In the bladder injuries along with the small bowel (forty cases) the mortality rate was twenty-two per cent. Thirty-five cases were wounded with gunshot with a mortality of thiry-four percent. Seventy-one cases were wounded by shell fragment with a mortality of thirty-two percent. There were three cases of bladder injury classified as due to pressure with no deaths. In forty-six cases the agent causing injury was not recorded.

One hundred thirty-seven of the one hundred fifty-five cases had an intraperitoneal laceration of the bladder. Nine cases had only an extraperitoneal laceration and none of these died. Surgical procedures carried out for bladder wounds varied little. One hundred ten had a suprapubic cystostomy with a repair of the laceration. Thirteen cases had a suprapubic cystostomy without repair. Six cases had a repair without any other procedure. Three cases had an indwelling catheter. Six cases were overlooked and seven died on the operating table. Repair of the laceration with suprapubic cystostomy is the procedure of choice. The abdomen is opened to explore and repair whatever intraperitoneal injury is found and the intraperitoneal tear into the bladder is thus easily inspected and repaired at the same time. The space of Retzius is regularly drained. In this series sulfonamides were occasionally placed in the abdomen and in later cases penicillin was introduced intra-abdominally.

Summary

(1) A case of stab wound of the bladder associated with evisceration and multiple perforations of the intestines (nine) and mesentery (two) is reported.

(2) Brief review of the literature discloses the infrequency of such injuries in civil practice.

(3) Early surgical management with adequate drainage of the bladder suprapubically with a retention catheter is the preferable procedure. Drainage of the prevesical space of Retzius and pelvis is indicated because of gross contamination intra and extraperitoneally.

(4) Infection in the case reported was satisfactorily averted with adequate antibiotic therapy and supportive treatment.

REFERENCES

1. Graves, Roger Colgate; Injuries of the Bladder, Lewis' Practice of Surgery, Vol. 8, Ch. 13.
2. Young, Hugh H.; Wounds of Urogenital Trace in Modern Warfare, Jour. o fUrology, Jan.-June 1942, Vol. 47, pp. 59-108.
3. Sandrey, J. C., Capt. and Mogg, R. A. Lt. Comm.; Wounds of the Bladder, The Lancet, June 1944, pp. 716-720.
4. Michels, Leon M., Maj. M. C. AUS.; Wounds of the Urinary Bladder (An Analysis of 155 Cases), Annals of Surgery, June 1946, Vol. 123, pp. 999-1002.

MECKEL'S DIVERTICULUM

Jules L. Whitehill, M.D., F.A.C.S., F.I.C.S.
Tucson, Arizona

It is indeed fortunate that Meckel's Diverticulum is present in but two percent of all individuals. The potentiality of this vestigial organ for producing pathology is so enormous that were it unversally present, as is the appendix and gallbladder, it would rival those organs as a source of income for the surgeon. Because of its infrequency too little attention has been given to Meckel's Diverticulum as a source of possible abdominal symptomatology. It is unusual for the average surgeon in performing a laparotomy to look for a Meckel's Diverticulum even when the source of abdominal pain is unexplained. Too often the surgeon will take out a normal appendix and fail completely to explore the ileum. I myself have operated on several individuals with pathological Meckel's Diverticula who had previously been subjected to laparotomy for appendectomy. It is not fully realized by the rank and file of general surgeons that even the normal appearing Meckel's Diverticulum may be a source of abdominal discomfort. It has generally been assumed that, in the absence of infection, ulceration or other demonstrable pathology, Meckel's Diverticulum is a symptomless organ. Nothing could be further from the truth; as a matter of fact nothing could be further from the truth with regard to other diverticula of the small bowel such as those of the jejunum and duodenum. It is now recognized that all of these diverticula are potential producers of symptoms even in the absence of demonstrable pathology; and this is evidenced by the fact that upon their removal the patient becomes asymptomatic. It should be a routine in performing any laparotomy where the ileum is available for exploration and where the additional procedure is not a hazard to the patient, to explore the terminal three feet of ileum for a possible Meckel's Diverticulum.

Meckel's Diverticulum arises as a persistence of a vestigial structure present in the first few weeks of embryonic life, known as the vitelline or vitello-intestinal duct; so called because it is a tubular bowel-like structure extending from the primitive gut to the yolk sac. It apparently plays a role in the absorption of nutriment from the yolk sac before the placenta of the fetus is firmly implanted. This vitello-intestinal duct also masquerades under the alias of the omphalomesenteric duct because, when it persists in the fully developed individual, it may extend from the umbilicus to the terminal ileum. Most of the difficulties to which a Meckel's Diverticulum may give rise are related to its embryological development. (Fig. 1) For example, the entire duct may persist as a patent intestinal structure from the terminal ileum to the umbilicus resulting in an intestinal fistula opening through the umbilicus. This is a rather unusual occurrence. More frequently, the segment from the umbilicus to the persistent Meckel's Diverticulum may atrophy to form a solid cord. This then gives rise to a band stretching from the umbilicus to a Meckel's Diverticulum, or, if the entire process is reduced to a cord-like structure this cord may extend di-



Fig. 1—Various complications of Meckel's Diverticulum based on anomalous development (1. Bowel obstruction; 2. Umbilical intestinal fistula; 3. Hemorrhage; 4. Perforation; 5. Intussusception; 6. Volvulus of Meckel's Diverticulum).

Read before the Annual Meeting of the Arizona Medical Association, Phoenix, Arizona, April 30, 1952.

recttly to the ileum and be the cause of intestinal obstruction by strangulation of adjacent small bowel. Most frequently, however, the connection between the umbilicus and the persistent diverticulum of the ileum disappears completely and what remains is the usual Meckel's Diverticulum; a tubular blind structure which extends for one inch to eight inches in length, and practically always arises from the antimesenteric border of the ileum. As previously noted, most of the Meckel's Diverticula arise within the last eighteen inches of ileum, but there are some which arise as high as two and a half or three feet above the iliocecal junction. On rare occasion it has been reported that the diverticulum may even be jejunal in origin. Not infrequently there are small subsidiary diverticula of the diverticulum which are of no special significance.

The most frequent symptom characteristic of Meckel's Diverticulum is the occurrence of gross bleeding. Such hemorrhage is much more frequent in the infant and first few years than it is in later life, although it may occur at any time from infancy to senility. The occurrence of such bleeding is the result of an embryological anomaly. Since Meckel's Diverticulum forms a part of the primitive gut, the multipotent cells within it are capable of producing most of the structures derived from the embryological gut. The most frequent ectopic tissue found in a Meckel's Diverticulum is gastric mucosa. This gastric mucosa is quite typical of the gastric mucosa found in the stomach and it is apparently capable of production of hydrochloric acid and pepsin. At least the chief and parietal cells of the gastric mucosa can be demonstrated in the gastric glands found in a Meckel's Diverticulum. Probably as a result of the presence of gastric mucosa, Meckel's Diverticulum may undergo peptic ulceration. Such peptic ulcers are usually present at the junction of the Meckel's Diverticulum with normal ileum. They give rise to bleeding which may be slow or profuse. Such blood when it traverses the colon may be evacuated as a tarry stool, or if the bleeding is very rapid it may be red to reddish black. It never is as bright as the bleeding which occurs from the terminal portion of the large bowel and this is often a clue to the site of bleeding. Any unexplained severe intestinal bleeding in an infant, or even in an adult, for which no other cause can be demonstrated, should be suspected of arising from a Meckel's Diverticulum. If a careful history is taken in the adult, it will often be found that prior to the onset of bleeding the patient complained of ulcer-like pain. Such pain frequently bears a relationship to meals but is not relieved by the ingestion of food or alkali. This too is often a clue to the presence of an ulcer of a Meckel's Diverticulum. Other types of ectopic tissue have been found in Meckel's Diverticulum the most frequent of which is pancreas. Colonic mucosa has also been found. Pos-

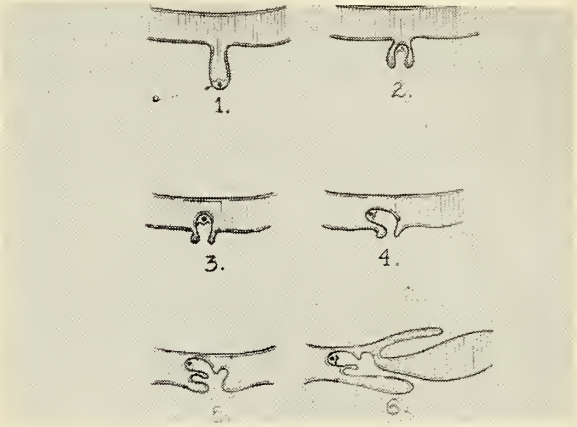


Fig. 2—Mechanism of Intussusception.

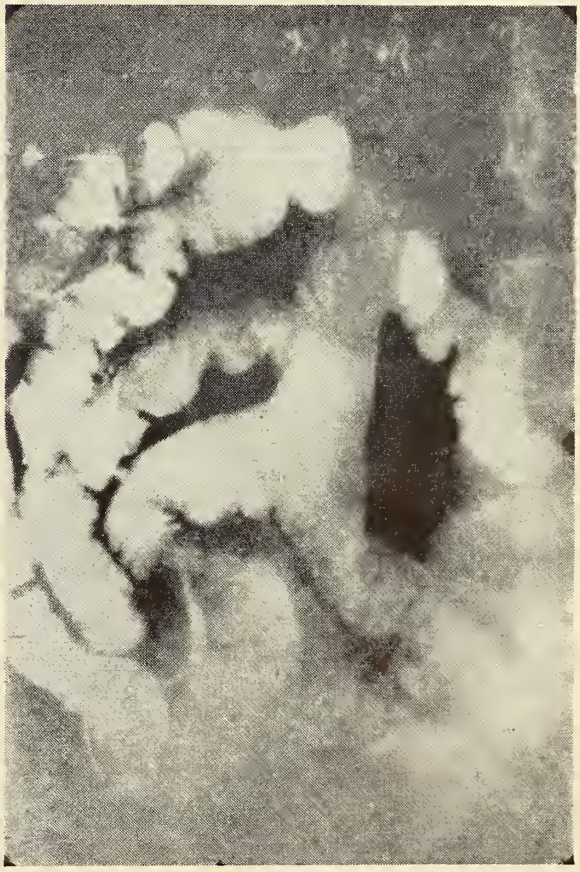
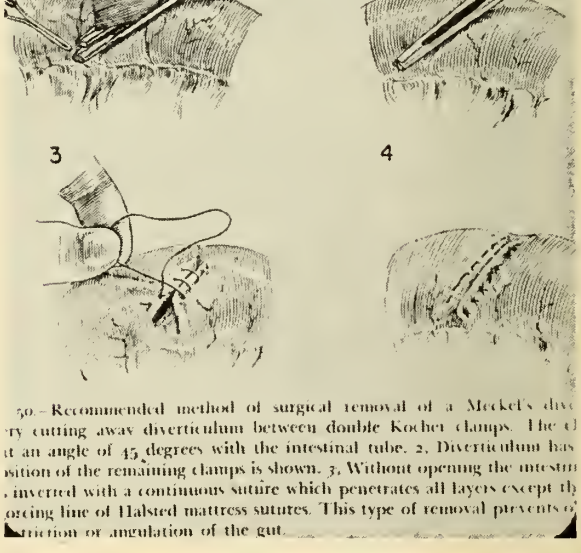


Fig. 3—Radiographic demonstration of Meckel's Diverticulum.

sibly because of the frequent presence of these abnormal tissues, tumors of Meckel's Diverticulum have been reported now and then. Carcinoma arising in a Meckel's Diverticulum has been reported. Carcinoid tumors occasionally occur and even sarcoma of a Meckel's Diverticulum has been reported. Ulceration of a Meckel's Diverticulum may go on to perforation with a generalized peritonitis. If a generalized purulent peritonitis is present upon laparotomy in a child with a normal appearing appendix, the ileum should be explored for the presence of a perforated Meckel's Diverticulum. Occasionally a Meckel's Diverticulum will have a very narrow communication with the ileum. In such a case the Meckel's Diverticulum may enlarge because of its inability to expel its contents and finally undergo pressure necrosis and gangerene. Or a Meckel's Diverticulum may twist at its base and produce strangulation of the organ. Several instances have been reported in which a very long Meckel's Diverticulum has tied itself into a knot, producing strangulation of included small bowel. In intussusception and particularly in recurrent intussusception, consideration must always be given to the possibility that the start of the lesion may be a Meckel's Diverticulum. Meckel's Diverticulum produces this condition by becoming inverted into the lumen of tthe ileum, thus serving as a bolus which the ileum tries to propel forward. In so doing, telescoping of the Meckel's and the ileum occurs into the more distal ileum. (Fig. 2) This is one of the more frequent complications of Meckel's Diverticulum. Finally a Meckel's Diverticulum may serve as a nidus for foreign bodies of one kind or another. Occasionally a concretion forms within the diverticulum which may be radioopaque. Unexplained round calcific shadows on x-ray should be suspected, in the absence of other demonstrable cause, of being enteroliths in a Meckel's Diverticulum. At times an injected foreign body will lodge within a Meckel's Diverticulum so that perforation by chicken bones and even vegetable shells has been reported.

The diagnosis of Meckel's Diverticulum is largely a clinical one and cannot be proven until surgical exploration. Only on rare occasions has it been possible to demonstrate a Meckel's Diverticulum radiographically, either by means of a G I series from above or on retrograde filling from a barium enema. (Fig. 3) The absence of such demonstration by x-ray in no way precludes the presence of a Meckel's Diverticulum. I should like to reiterate that, in the presence of unexplained abdominal pain peptic in nature or otherwise, the possibility of a Meckel's Diverticulum should be strongly considered. Further, I should like to reemphasize the necessity for exploration of the terminal several feet of ileum at every laparotomy, when such explorattion does not jeopardize the patient. The surgeon will be richly rewarded by finding a structure which is a very importatnt potential hazard to the patient if not the actual cause of the patients symptoms; and he will be saved from the embarrassment of its subsequent removal by another surgeon.

The technique of removal of a Meckel's Diverticulum is a relatively simple one. It has been recommended by some that a clamp be placed across the base of the Meckel's Diverticulum in a longitudinal direction and that it be sewn transversly. Others recommend a transverse application of the clamp, while still others have recommended that a purse string be placed about the base. The purpose of all of these maneuvers is to prevent encroachment upon the lumen of the bowel. Of course, the lumen of small bowel can be encroached upon to a rather marked degree withou producing obstruction inasmuch as the normal contents of the bowel



50.—Recommended method of surgical removal of a Meckel's div
ry cutting away diverticulum between double Kocher clamps. The d
at an angle of 45 degrees with the intestinal tube. 2. Diverticulum has
osition of the remaining clamps is shown. 3. Without opening the intestin
, inverted with a continuous suture which penetrates all layers except th
orcing line of Halsted mattress sutures. This type of removal prevents o
triction or angulation of the gut.

Fig. 4—Surgical technique for removal of Meckel's Diverticulum (Ladd and Gross).

are liquid. Ladd and Gross have recommended that an Ochsner clamp be used across the base of the diverticulum in an oblique direction to the long axis of the bowel. (Fig. 4) This is a compromise between the transverse and the longitududnal applications of the clamp and tends to prevent the narrowing of the bowel. The clamp should be placed well down at the base because, as previously mentioned, many of the ulcers are at the junction of the diverticulum with normal bowel. The diverticulum is excised above the clamp with a carbolized scalpel, a running atraumatic chromic suture of the Parker-Kerr type is applied, the clamp removed and the bowel edges inverted. The same suture can be run backward as a continuous Lembert suture and tied to itself. A third row of interrupted fine silk sutures completes the closure.

CONSERVATIVE SURGICAL PROCEDURES IN THE TREATMENT OF PULMONARY GRANULOMAS

C. Thomas Read, M.D.
Phoenix, Arizona

Granulomatous inflammation may be defined as an exudative and productive reaction in the tissues, characterized by the accumlation and proliferation in the injured area of reticuloendothelial cells. The exudative reaction in this definition refers to the presence of fluid elements derived from the circulation and the productive (or proliferative) component comprises the growth of new tissue or cells.

The proliferating cells found in such a process are reticuloendothelial cells, or as sometimes named, wandering cells, macrophages or histiocyttes. In the presence of some injurious agents these cells are involved not only in a proliferative process but in a necrotizing reaction as well. The deposition of granules within an area accompanying the proliferative response of cells has led to terming this inflammatory process a granuloma(1).

A large variety of etiological factors are responsible for the production of granulomas and among the known group are viral, bacterial, mycotic, chemical and physical agents. Other unknown agents are responsible for such diseases as nonspecific granulomatosis of the intestine and Boeck's Sarcoid.

Much has been written in reference to the diagnosis of these lesions and that phase of the subject will not be discussed in detail. Suffice it to say that the more important examinations relative to a diagonsis include serologic procedures, cutaneous tests, x-ray examinations including tomography, smears and cultures from specimens, sputums, and any draining exudates, and biopsy. The histopathological characteristics of biopsied lesions are readily recognized but they provide little help in determining the specific etiologic agent.

In situations presenting diffuse granulomatous involvement of both lungs or of the mediastinal lymph nodes a biopsy of the supraclavicular nodes overlying the scalene muscles in the anterior triangle of the neck will frequently aid in arriving at a diagnosis. The biopsy can be performed and may be revealing even though the nodes are not enlarged and palpable. With the good resultts obtained in the treatment of sarcoid with cortisone, biopsy of the lung should be seriously considered when Boeck's sarcoid is strongly suspected(2).

Although these disease entities are frequently widely disseminated throughout the entire body, further comment in their regard will be limited to their occurence within the lungs.

The granulomatous inflammatory diseases bear resemblances clinically, and grossly all granulomas present similar appearances. Because they are fundamentally alike anatomically, lesions of such nature situated in the lungs produce roentgenographic shadows of marked similarity, that may be cavitary or nodular in configuration.

Many of the granulomatous lesions of the lungs can be managed conservatively, e.g., coccidioidomycosis frequently appears as an isolated parenchymal infiltration with or without cavitation and fades away by spontaneous resolution or leaves behind a fibrotic or calcific scar. There are numerous available references to the spontaneous healing of histoplasmosis: deduced by finding healed nodular foci in lungs of individuals living in an endemic area, who present positive skin tests for that disease and negative tuberculin reactions.

However, for reasons to be elaborated upon,

Read before the Arizona Medical Association Annual Convention, Phoenix, Arizona, April 30, 1952.

the granulomatous diseases of particular interest to the physician and surgeon are those in which a definite diagnosis cannot be readily made. Among these are cavitary lesions which strongly resemble pulmonary tuberculosis and solitary nodules in the periphery of the lung which roentgenographically are not unlike peripheral neoplasms. In the Southwestern states coccidioidomycosis assumes a particular role of interest for it is a great imitator of both tuberculosis and neoplasm.

Surgical extirpation should be considered for the granulomatous processes that manifest certain complications arising from the disease focus, and when a granuloma mimics a pulmonary neoplasm.

The most frequent complications inviting surgical intervention are hemoptysis, secondary infection of the cavities (with or without demonstrable bronchiectasis), and spontaneous rupture of a cavity with its inescapable sequelae. Other indications for surgery include indeterminate lesions failing to respond to medical treatment and residual cavities persisting due to epithelial linings.

An apical cavitary lesion that strongly simulates tuberculosis by x-ray or in which debatably pathogenic acid fast bacilli have been recovered from the sputum should also be presented for surgical consideration. Acid fast bacilli are sometimes recovered only on one occasion and may or may not be proved to be Myobacterium tuberculosis, nevertheless the patient may be catalogued as tuberculous and be treated accordingly with less efficient procedure than resection surgery.

Within the past few years all physicians have been made conscious of the solitary rounded density observed on x-ray examination of the chest and are confronted with the management of such a finding. Individuals harboring these abnormal densities are often symptomless and their number has increased with the popularity of mass x-ray surveys. A peripheral primary malignant neoplasm of the lung may arise insidously, without symptoms, and be depicted as a similar rounded mass on x-ray examination. Other lesions of the lung giving the appearance of a rounded density on x-ray are granulomas, hamartomas, solitary metastatic nodules, abscesses filled with fluid, bizarre cystic diseases such as echinococcosis, and benign neoplasms (including bronchial adenoma). These lesions may be indistinguishable roentgenographically and when a definite diagnosis cannot be made beforehand a neoplasm of the lung must be considered foremost and excisional surgery advised.

As described by the Mayo Group, who have reported their experience with sixty-five cases of a variety of surgically removed pulmonary granulomas, resection is the best treatment in many instances. However, it is not as urgent or as necessary as in the case of pulmonary neoplasms(3). In 1950 Melick published an enlightening review of expressed opinions on the surgical management of chronic forms of coccidioidomycosis. Practically all the surgeons responding to his inquiry were in favor of excisional surgery, of various types, when the indications recounted above were present(4). It behooves the clinician and the surgeon, therefore, to attempt to make the proper diagnosis in order that operation might be delayed or denied those individuals with benign granulomas. However, as inferred previously, the diagnosis frequently cannot be made until the time of thoracotomy.

The surgical principles applicable to the small lesion with cavitation and the solitary rounded foci of pulmonary tuberculosis are well suited for the surgical extirpation of other granulomas as well. These lesions frequently are confined to segments or subsegments or present on the surface or margin of a lobe. As Chamberlain has indicated, if there is a question of the presence of tuberculosis the size of the lesion has little to do with its activity or its potential danger and indeed the future course of caseous lesions is unpredictable(5, 6).

The requirements and objectives of the surgical technics that should be applied are the removal of the major localized disease foci and preservation of the maximum amount of normal functioning pulmonary tissue.

The stated requisites are complied with in several available procedures and are specifically embodied in the following: (1) wedge or "V" excision of tissue (seldom used because of infolding of surrounding adjacent surfaces), (2) enucleation of solid foci and cavities, (3) removal of a firm retracted airless segment or subsegment by stripping it along the adjacent anatomical cleavage planes from the periphery toward the hilum(7), (4) in larger lesions but still confined to one or two segments, an anatomical segmental resection can be performed(5, 6, 8, 9, 10). The procedures can be used singly

or in combination, being easily adapted to the particular indication noted by the surgeon at the time of thoracotomy.

Coccidioidal cavities are sometimes isolated, discretely located within the substance of the lung, and present on a flat surface or margin of a lobe without surrounding satellite infiltrations of any significance. Under these circumstances such a cavity can be easily and readily enucleated. This was done in the case of R. D. (Fig. 3) wherein the cavity was situated in the marginal surfaces of both upper and lower lobes. Any other procedure than enucleation would have required a much greater loss of tissue from both lobes.

When the preoperative diagnosis resolves itself around coccidioma, tuberculoma or neoplasm, thoracotomy is indeed indicated. Coccidiomas lend themselves to easy enucleation and though they may simulate tuberculomas the procedure is adaptable to either disease. Confirmation or a general interpretation of the disease entity at hand can be obtained from examination of the gross specimen or with the aid of frozen section done by the pathologist. If the immediate histopathological report indicates that the lesion removed is not granulomatous but neoplastic in nature further more radical resection can be performed. (This method is not unlike the routine practiced in the surgery of breast tumors.) However, it would be unusual for a peripheral neoplasm not to show considerable surrounding induration and other features characteristic of such lesions. Nevertheless the interpretation rests with the judgment of the pathologist and the operating surgeon.

Occasionally an upper lobe granuloma with cavitation simulates tuberculosis and the picture may even be confused with the finding of acid fast bacilli on concentrates; and as in the case of E. C. (Fig. 1) a history of one positive culture made the diagnosis more complex. At operation sebmental involvement permits no differentiation between the two diseases but segmental resection may be applicable to either one. Thoracoplasty on the other hand is not a satisfactory procedure for a chronic granulomatous process (other than tuberculosis) in such a location because some degree of suppuration is present which is usually the cause for the manifest symptoms. Also chronic granulomatous cavities not infrequently develop epithelialized linings, the cure for which is excision.

Because the lesions under discussion are practically all potentially dangerous if permitted to remain untreated, a patient usually will be benefited by operative intervention regardless of the preoperative assumptions regarding the disease process in question(11).

*Illustrative Cases**

Patient E. C.—This forty-four year old white male was admitted to the hospital July 31, 1951 (Figs. 1 and 2).

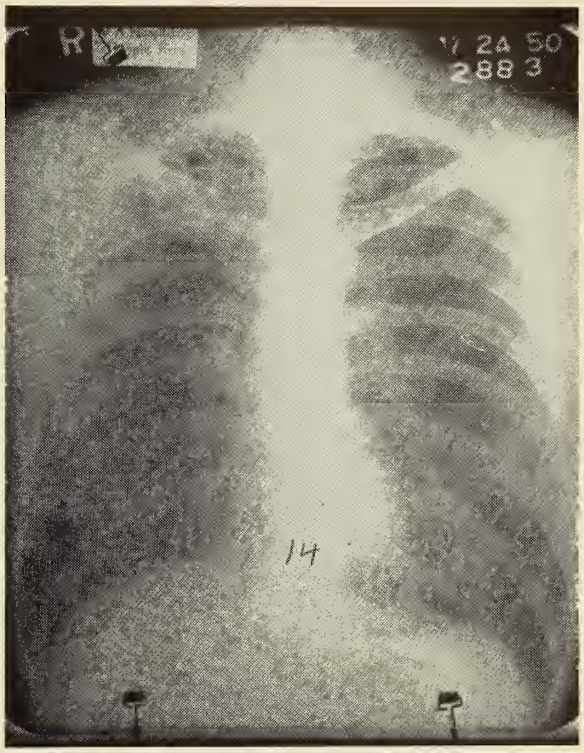


Fig. 1 (Patient E. C.)—Preoperative x-ray of the chest showing the large fairly thin-walled cavitary area in the right upper lobe region. Serial examinations had shown this excavated area to he increasing in size.

His history disclosed that in November 1943 while in the Armed Forces a chest x-ray revealed a smal larea of fibrosis in the right apex. This was believed to be of no clinical significance, and he was returned to full military duty. A follow-up x-ray in July 1945 was considered negative. In April 1949 an x-ray taken at a Veterans Hospital showed an infiltration in the right upper lobe. Sputums were negative for acid fast bacilli and he was discharged with a diagnosis of arrested tuberculosis. A subsequent examination in July 1950 revealed a possible cavity in the right apex with surrounding infiltrations. Concentrates of the sputum were negative for acid

*Patients E. C. and R. D. are included in an article to be presented by the author at the 32nd Annual Meeting of the American Association for Thoracic Surgery.

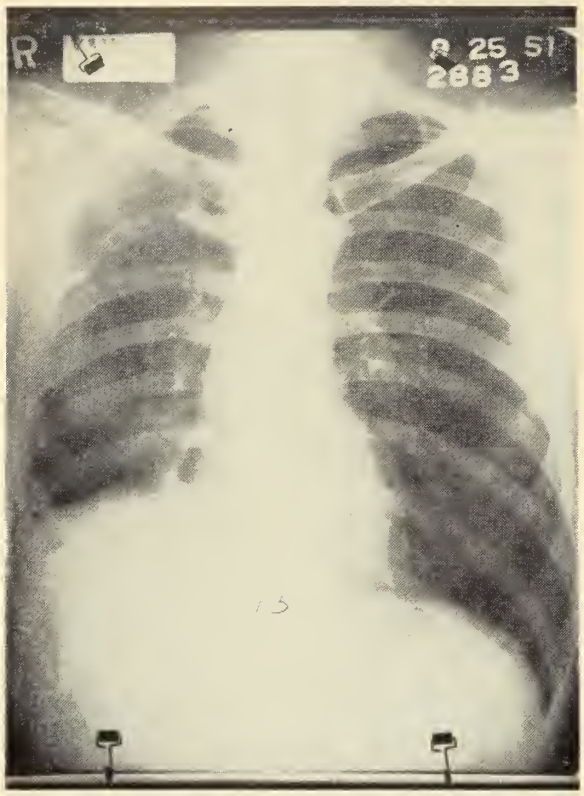


Fig. 2 (Patient E. C.)—Roentgenogram of the thorax about one month after operation. Examinations subsequent to this have increased clearing of the operated hemithorax.

fast bacilli. Repeat x-rays including tomographs in 1950 revealed a cavity in the right upper lobe. Tuberculin skin tests were positive in the second strength and an equivocally positive coccidioidin test was found. In May 1951 he was hospitalized at a Veterans hospital and a culture of the sputum for acid fast bacilli was said to have been positive. This examination, however, was never confirmed by subsequent studies.

Physical examination was essentially negative. Differential diagnosis resolved itself about coccidioidomycosis and pulmonary tuberuclosis and pulmonary resection was advised.

Operation Aug. 22, 1951. On entrance into the thorax the right upper lobe was found to be about half its normal size. This was due to the marked reduction of the volume of the apical and posterior segments which were firm and airless. Due to the dense fibrous adhesions extrapleural dissection of the involved segments was required. Two firm rounded foci were palpable, one in the anterior segment of the upper lobe and one in the superior segment of the lower lobe. These were enuclated during the procedure. The nodule in the superior segment was found to show evidence of central excavation but the nodule in the anterior segment of the upper lobe was solid and both contained amorphous caseous-like material. The cavity in the apical and posterioor segments was inadvertently entered and showed granular pinkish-white walls. There was some collection of detritus covering the lining. The segments were removed in the usual manner and no major leaks followed the resection and the enucleation of the foci.

Histopathological diagnosis: coccidioidal granulomata of the lung with cavitation.

Postoperative course. Postoperatively there was slow bleeding into the chest, probably on the basis of prolonged prothrombin time, necessitating transfusions. The complication of hemothorax in the recent operated area was treated with Varidase(SK-SD). This was the only eventful occurrance in his postoperative course and thereafter he had a satisfactory convalescence. He was discharged very promptly and was seen three months later at follow-up at which time continued improvement was evident.

Comment: As noted in the preoperative assumption the differential diagnosis lay between tuberculosis and coccidioidomycosis. Apical and posterior segmental resection of the right upper lobe was entirely satisfactory in this situation and was applicable to either tuberculosis or coccidioidomycosis. In addition it is to be noted that foci in the remaining portion of the upper lobe and superior segment of the lower lobe were removed during the course of the procedure. The nodule that was excavated in the superior segment may or may not have produced difficulty at a later date. By salvaging the anterior segment of the right upper lobe which showed compensatory enlargement and by only enucleating the focus from the superior segment the maximal amount of pulmonary tissue was salvaged in this particular instance with the chosen procedure (Fig. 2).

Patient R.D.—This eighteen year old white male was admitted to the hospital August 1, 1951 (Figs. 3 and 4).

His main complaint at that time was cough productive of musopurulent sputum of several months duration. In addition he had numerous psychosomatic disturbances and complaints related to various systems. However all the latter were ruled as having no organic basis and his pulmonary trouble was worked out completely. He had had a cough for about two years

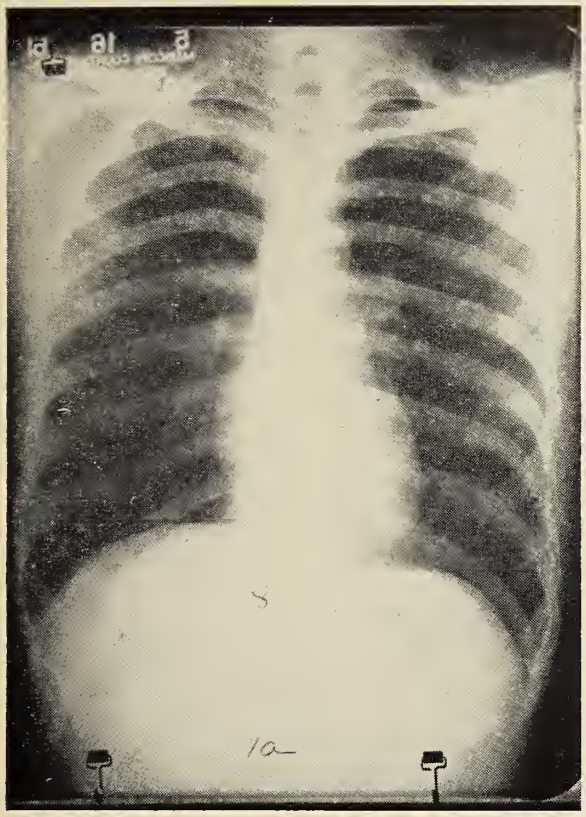


Fig. 3 (Patient R. D.)—Roentgenographic appearance of the lungs depicting the relatively thin walled ring-like shadow in the lower third on the left. At this time the impression was that this was a coccidioidal cavity.

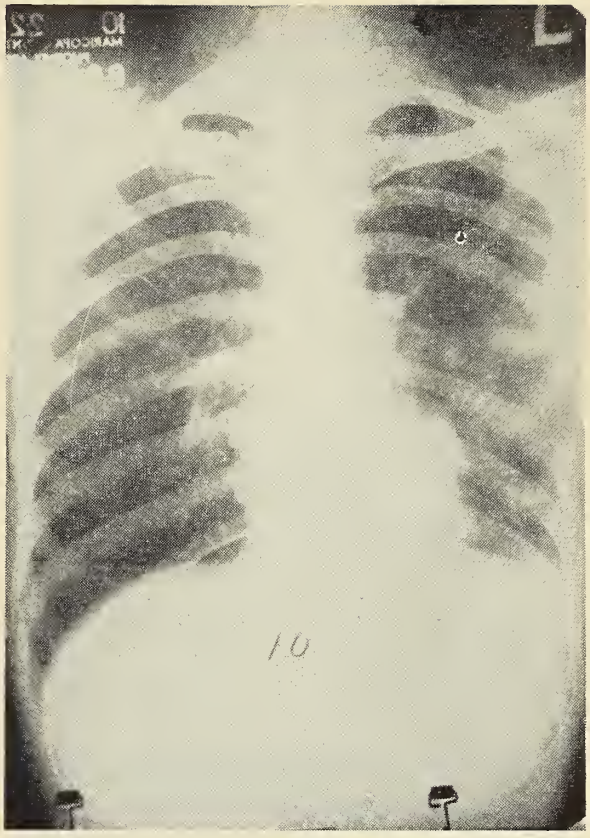


Fig. 4 (Patient R. D.)—A picture of the x-ray of the chest ten days postoperatively showing early complete re-expansion of the left lung following simple enucleation of the coccidioidal cavity which was situated in both lobes.

but during the year prior to his admission he began to raise mucopurulent sputum and occasionally this was greenish or grayish brown. He denied any frank hemoptysis. Work-up at the hospital showed a positive tuberculin skin test (first strength) and a positive skin test (1:100) for coccidioidomycosis.

Physical examination was essentially negative except for the chest. A few rhonchi were heard on deep and forced respiration over the left lower lobe posteriorly and in the axillary region. The sedimentation rate was 31 (Westergren method). Sputums were negative for acid fast bacilli on concentrate and by culture. An x-ray of the chest revealed a thin walled cavity in the left lower lung field with minimal adjacent mottled infiltrates (Fig. 3). This was considered to be a cavity due to coccidioidomycosis and from the history and observation it was thought to be infected.

Operation Oct. 5, 1951. On opening the thorax a few filmy and fibrous avascular adhesions were found over the fissure about the midaxillary region. Crossing the obliterated major fissure in its central portion there was a slightly indurated area measuring about four cm in diameter which by palpation indicated an underlying cavity. This lesion was found to lie about half in each lobe along the fissure region. During enucleation of the cavity, by blunt and sharp dissection, from the lobes it was inadvertently entered and a smal lamount of grayish-tan detritus escaped into the wound. Later the cavity was further opened and used as a guide in dissection as one would do in dissecting out a hernia. Very little air leakage and bleeding occurred along the plane of dissection. No attempt was made to close the defect in either lobe. Following removal of the cavity reinflation of the lung was prompt and only minor air leaks occurred.

Histoathological diagnosiss coccidioidomycosis (confirmed by culture).

Postoperative course. On the sixth postoperative day this patient developed spontaneous subcutaneous emphysema over the upper anterior chest and at fluoroscopy and by x-ray examination a hydropneumothorax was discovered.

With the aid of SK-SD, aspiration, and a closed thoracotomy the lung was immediately re-expanded and thereafter the patient's postoperative course was uneventful. He was discharged promptly from the hospital and continued his convalescence at the County Hospital for a short period. Subsequent postoperative x-rays revealed good expansion of the left lung although there was some fibrosis and peculiar ring-like pleural reaction about the operative site. Subsequently a bronchogram was done and this was shown to be of no significance.

Comment: Enucleation of the cavity in this instance without sacrificing either surrounding segment of the upper and lower lobe permitted the conservation of large amounts of pulmonary tissue. Any other procedure would have had to sacrifice functioning pulmonary parenchyma (Fig. 4).

Patient Mrs. W. F.—In 1946 this patient developed a cough productive of foul tasting and malodorous sputum. The sputum varied in small amounts. Shortly before examination in August 1951 hemoptysis occurred for the first time. Past history revealed that in 1944 an x-ray of the chest showed a cavity in the left upper lung field. This was treated as tuberculosis. Early in 1946 she was hospitalized and a left pneumothorax was instituted. This was maintained for over one year and finally abandoned because it seemed to be unsuccessful in closing the cavity. From 1947 to 1951 the patient had no further treatment and was only x-rayed on occasions. The physical examination was essentially noncontributory (Figs. 5 and 6).

Preoperative course. The lesion was thought not to be tuberculous but probably granulomatous in nature, possibly coccidioidomycosis. Sputums were negative for acid fast bacilli. A bronchogram was done and it showed a large cystic area in the left uper lobe with some cylindrical bronchiectasis in the involved segments.

Operation 8/23/51. On opening the thorax the apical posterior division was found to be contracted and firmly adherent to the chest wall necessitating partial extrapleural dissection. The apical-posterior segment was removed in the usual manner with conservation of the large remaining portion of the left uper lobe consisting

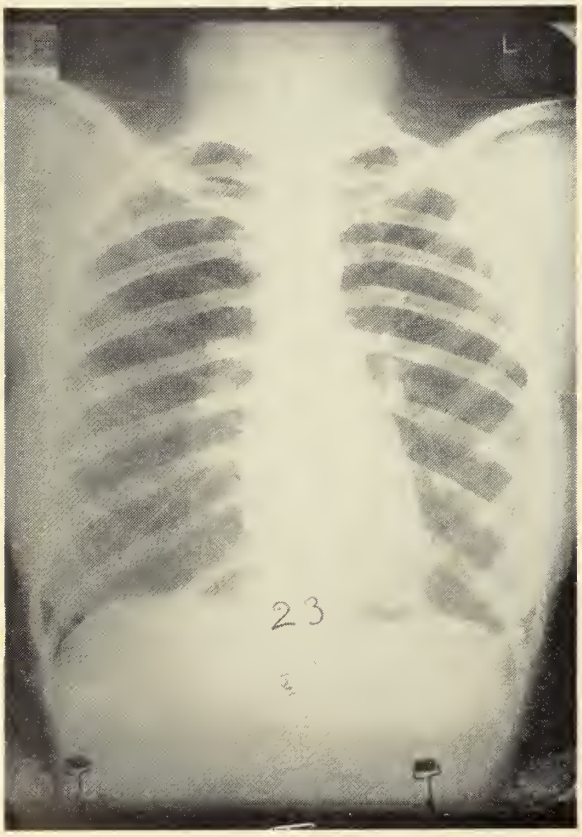


Fig. 5 (Patient Mrs. W. F.)—X-ray of the thorax following a bout of hemoptysis Aug. 1951, revealing a large thin-walled cavity in the upper lobe. Progress films from 1944 on showed an increasing diameter of the cavity but no satellite infiltrations were ever visualized.

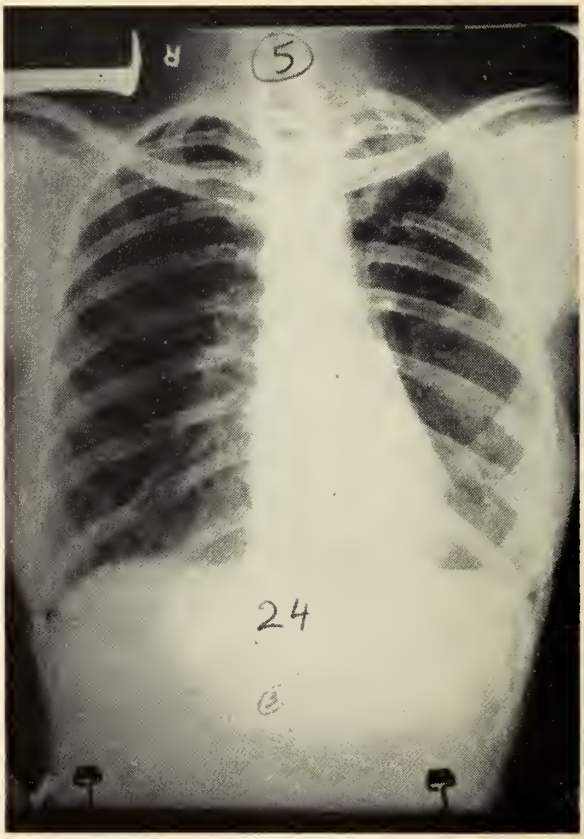


Fig. 6 (Patient Mrs. W. F.)—Postoperative x-ray of the chest following segmental resection of the diseased apico-posterior division and decortication of the left lower lobe.

of the anterior division and the lingular segment. When the lung was reinflated it adequately filled the chest and there was only a small defect in the outline of the lung where the apical-posterior segment had been removed. The lower lobe was partially incarcrated in a thick fibrous peel which stripped away with relative ease and this permitted good reinflation of the lower lobe. This fibrous peel was thought to be due to the irritative processes concomitant with the previous pneumothorax therapy. No additional foci were palpable in either lobe.

Postoperative course. The patient had a fairly uneventful postoperative course. At follow-up examinations which were conducted at one, three and five months the patient showed good postoperative progress (Fig. 6).

Comment: This patient undoubtedly developed an infected cavity with some degree of bronchiectasis as seen by the bronchogram and also in the pathological specimen. She benefited further from the operative procedure since the decortication of the partially incarcerated lower lobe was performed which increased her pulmonary function, at least from a clinical standpoint. This case well illustrates the recalcitrant nature of this particular type of lesion to pneumothorax in an attempt to close the cavity by that mode of therapy. As long as the cavity was relatively asymptomatic the patient might have gotten along indefinitely following her usual mode of living, however with evidence of bleeding and bronchographic evidence of bronchiectasis operative intervention was indicated. Although the original disease occupied a segment of some size, by the time operation was done this area of involvement had shrunken to a relatively small division of the left upper lobe and on removal of the diseased area there was no sacrifice of functioning pulmonary tissue.

Histopathological diagnosis: chronic granuloma, tiology undertermined. (The pathologist however noted it could be a coccidioidal cavity but no spherules were found.)

Patient F. McS.—This thirty-seven year old white male considered himself well when an x-ray of his chest was made during an x-ray survey in March 1951. (Figs. 7 and 8).

A rounded density was found in the right lung field on the x-ray. Although he was symptom

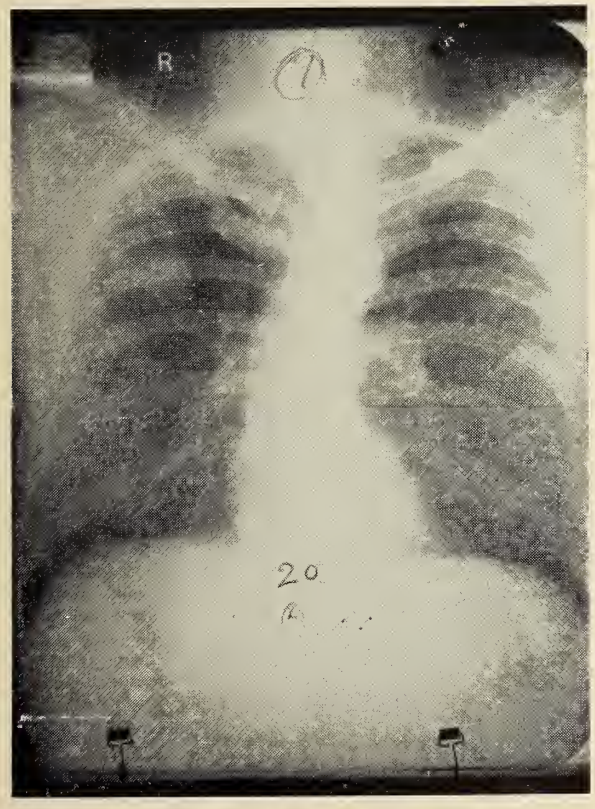


Fig. 7 (Patient F. McS.)—An immediate preoperative roentgenogram of the chest showing the large solitary rounded lesion in the upper half of the right lung. This nodule had increased about one-half in size in a period of about seven months.

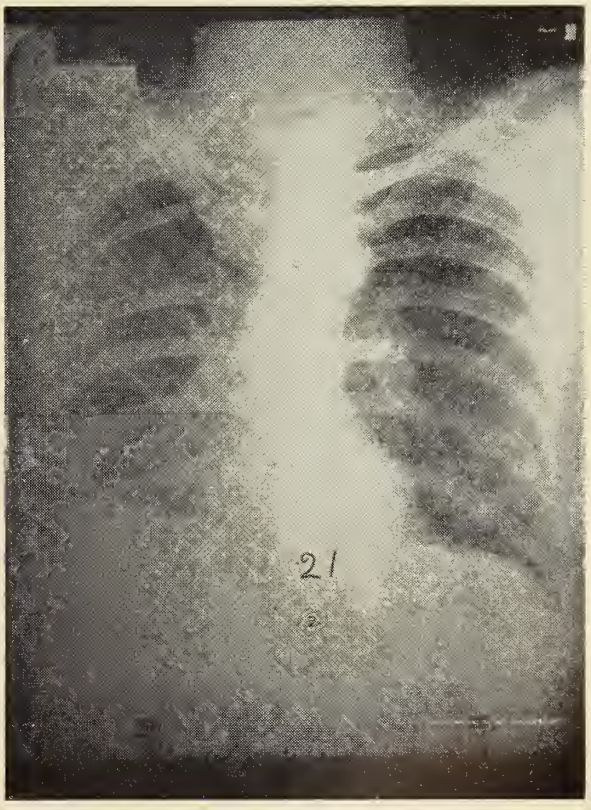


Fig. 8 (Patient F. McS.)—Roentgenogram of the thorax made less than one month following the enucleation of the coccidioidal granuloma. The good result from the convervative procedure is evident.

free he saw his physician on learning of the x-ray findings. The cutaneous tests showed a strong coccidioidin reaction and a negative tuberculin. The complement fixation test for coccidioidomycosis was negative as was the precipitan test.

The past history and physical examination were essentially noncontributory. The diagonsis resolved itself about coccidioma, tuberculoma and neoplasm, and explatory thoracotomy was advised. By the time operation was performed on October 8, 1951 the lesion had shown some increase in size.

Bronchoscopy performed on the 25th of August 1951 was essentially within normal limits. No further data was obtained from the secretions obtained at the procedure.

Operation Oct. 8, 1951. On opening the thorax a fairly hard slightly irregularly rounded mass measuring about 3 cm in diameter was palpable in the posterior portion of the right lung crossing the major fissure which was incomplete. The major portion of the mass was found within the substance of the upper lobe and a small portion of it was imbedded in the adjacent contiguous lower lobe. The mass was firmly adherent to the parietal pleura posteriorly and this area was liberated extrapleurally. The surrounding adjacent lung tissue was well aerated and showed no induration and no additional nodules were palpable in any of the lung substance. The mass, after enucleation, was opened in the operating room by the pathologist and it presented a caseous center and a whorled laminated appearance of the surrounding layers about the softened central portion. The histopathological diagnosis was chronic granuloma. The culture showed fungi compatible with coccidioides. These were injected into a guinea pig and the diagnosis of coccidioidomycosis was confirmed.

Postoperative course. This man had an entirely uneventful postoperative course and was discharged from the hospital within a period of about ten days. He was back at work within three weeks. Subsequent follow-up examinations have shown no findings to indicate any regret for this exploratory thoracotomy. (Fig. 8).

Comment: In this particular situation the diagnosis easily resolved itself about a possible granuloma of tuberculosis or coccidioidomycosis and neoplasm was seriously considered. The nonneoplastic character of the lesion was determined at the operating table but further confirmation of the assumption that it was a coccidioma awaited culture studies and guinea pig innoculation. At operation it was noted that there was an incomplete fissure in the diseased area and unless enucleation had been carried out, considerably more lung tissue would have been sacrificed if a segmental type of resection in two lobes had been performed. However the lesion easily surrendered itself to enucleation from the surrounding tissues. The maximum amount of functioning pulmonary tissue was thus preserved.

Discussion: It is not to be inferred from this commentary that all cases of pulmonary granuloma can be managed in the conservative methods outlined. Not infrequently the disease process is so extensive or the complications resulting from the disease so severe that other procedures including lobectomy and pneumonectomy must be executed. The author's experience has been fairly concentrated to two major categories of granuloma, namely tuberculosis and coccidioidomycosis but judging by previous reports other granulomas presenting similar isolated nodular and cavitary forms can be managed in an identical manner (3, 4, 12).

Precedence to the use of the recommended technics is readily admitted, since all of the procedures have been applied previously in the treatment of coccidioidomycosis(4) and tuberculosis(5, 6). Too much stress, however. cannot be put on the conservation of pulmonary tissue and removal of only the major foci of the disease processes.

Cotton, quoted by Melick(4), has stated he has never seen coccidioidomycosis become reactivated following excisional surgery, as sometimes is seen after pulmonary resection for tuberculosis; his opinion apparently was obtained from a review of five hundred cases. By the same token the patient is not required to have thoracoplasty when a limited resection of pulmonary tissue is performed.

Although the details in the foregoing comments dwell around two major categories of granulomatous lesions, coccidioidomycosis and tuberculosis, recent evidence exists that histoplasmosis likewise occasionally lends itself to surgical consideration(11).

A word of caution should be instilled at this point regarding the possible simultaneous occurrence of granuloma and carcinoma. The combination of pulmonary tuberculosis and primary bronchial neoplasm has been observed on several occasions and recently a report has appeared on

the coexistance of bronchogenic carcinoma and cocidioidomycosis(13). Other primary pulmonary malignant neoplasms as well may occur concomitantly with granulomatous lesions of the lungs(13). The shadows of dual lesions cast in chest x-rays may be interpreted only as one entity which would prove disastrous if conservative management is prolonged and thoracotomy not effected.

In excisional surgery for tuberculosis, conservatism has stood the test of time in that no more complications are seen and reactivations are no greater in number with limited removal of lesions than when major portions of lung tissue are removed, yet large areas of functioning pulmonary parenchyma are preserved(5, 6).

There is little reason to doubt that similarly good results will prevail for other types of granulomas treated in a like manner by the methods outlined.

Summary

1. Granulomas of the lung are fairly frequent lesions and are caused by a variety of agents.

2. The differential diagnosis of a rounded solitary pulmonary lesion often lies among mycotic disease, tuberculosis and neoplasm.

3. These lesions may be indistinguishable from a roentgenographic point of view.

4. Frequently pulmonary granulomas especially tuberculosis and others of mycotic origin are suitably adapted to extirpation.

5. Conservative pulmonary excisional surgery with the objective of removing the major focus of disease with minimum sacrifice of functioning pulmonary parenchyma is frequently sufficient in the surgical management of granulomas.

6. An outline of the suggested methods of surgical management is given and illustrative cases are described.

REFERENCES

1. Forbus, W. D.: Granulomatous Inflammation, Charles C. Thomas, Publishers, Springfield, Ill., 1949.
2. Lovelock, F. J., and Stone, D. J.: Cortisone Therapy of Boeck's Sarcoid J.A.M.A. 147:930 (Nov. 3) 1951.
3. Good, C. A., Clagett, O. T., and Weed, L. A.: Granuloma of the Lung: A Problem of Differential Diagnosis, Tr. Nat. Tuberc. Assn. P 294, 1951.
4. Melick, D. W.: Excisional Surgery in Pulmonary Coccidioidomycosis, J. Thoracic Surg. 20:66, 1950.
5. Chamberlain, J. M., Klopstock, R.: Further Experiences with Segmental Resection in Tuberculosis, J. Thoracic Surg. 20:843, 1950.
6. Chamberlain, J. M., Storey, C. F., Klopstock, R. and Daniels, C. F.: The Small Pulmonary Lesion—Surgical Management, Tr. Nat. Tuberc. Assn. P 226, 1951.
7. Blades, B.: Conservation of Lung Tissue by Partial Lobectomy, Ann. Surg. 118:363, 1943.
8. Churchill, E. D., and Belsy, R.: Segmental Pneumonectomy in Bronchiectasis, Ann. Surg. 109:481, 1939.
9. Clagett, O. T., and Detering, R. A., Jr.: Technique for Segmental Pulmonary Resection with Particular Reference to Lingulectomy, J. Thor. Surg. 15:227, 1946.
10. Overholt, R. H., and Langer, L.: New Technique for Segmental Resection: Its Application in Treatment of Bronchiectasis, Surg. Gynec., and Obst. 84:257, 1947.
11. Brewer, L. A., Jones, W. M. G., and Dolley, F. S.: Nonmalignant Intrathoracic Lesions Simulating Bronchogenic Carcinoma—Report of Thirty Cases J Thoracic Surg. 17:439, 1948.
12. Hodgson, C. H., Weed, L. A. and Clagett, O. T.: Pulmonary Histoplasmosis: Review of Published Cases and a Report of an Unusual Case, J. Thoracic Surg. 20:97, 1950.
13. Hood, R. M.: Coexisting Bronchogenic Carcinoma and Coccidioidomycosis, J. Thoracic Surg. 20:478, 1950.

BASIC *Science* SEMINAR

"PHYSIOLOGIC CONSEQUENCES AS THE RESULT OF INTESTINAL OBSTRUCTION"

Jorge Ribeiro, M.D., Pima County General Hospital
Tucson Medical Center, St. Mary's Hospital, Tucson, Arizona

Intestinal Obstruction—Definition: four essential symptoms characterize intestinal obstruction. (1) Detention or stoppage of the passage of the contents of the bowel. (2) Incessant nausea and vomiting which finally becomes fecaloid. (3) Sharp, colicy pain in the abdomen. (4) Distention which becomes progressively marked.

To these four cardinal symptoms we have to add to a variable degree according to the clinical form, the so-called general or systemic effects, metabolic changes, nervous reflexes, infection, and intoxication, which give rise to dehydration, electrolytic changes, cardiac collapse, abdominal shock, respiratory complications, peritoneal septicaemia, all of which are progressive and take the obstructed person to death if a correct treatment does not remove the obstacle to the fecal contents.

It is noted that this physiopathological definition does not correspond to a constant anatomic definition; that is, the cause may be variable and there are two great groups: (a) Functional obstruction, when it is due to an alteration of the intestinal motility; which can be either spastic or paralytic. (b) Mechanical obstruction, when an organic trouble stops the normal course of the intestinal contents.

It is the second group which is most important

clinically. This also may be considered either an acute obstruction when the change is brought about suddenly, or chronic when the picture develops slowly over a long period. It may be partial when the occlusion does not block the circulation of all the intestinal contents, or complete, when this circulation is totally stopped. The level of obstruction must also be considered: high in the small intestine or low in the large bowel. The preservation of the blood supply must also be considered as strangulation will give rapid necrosis and destructioon of the tissues of the involved area.

This variability in causes, location and signs has led to a tremendous volume of research and speculation regarding the cause of death from intestinal obstruction (Vaughn pointed in 1950 that mortality from it still ranged 18 to 50 per cent). All these experimental studies have produced great improvement in the treatment of man. (Nemir stated in Feb., 1952, that mortality reported from the larger clinics still is in a range of 10 to 20 per cent).

When an obstruction occurs, various changes take place, locally in the bowel and systemically; these systemic or general effects are preceded and caused by the effects of the intestinal obstruction on the bowel wall and its cure can never be accomplished until the bowel has been restored to a normal state.

Local effects of obstructioon in the bowel—At the onset of obstruction locally there is an upset in the neuromuscular mechanism of the bowel to the obstructed point with increased peristalsis. The failure to remove the cause of obstruction results in an increase in the frequency and intensity of the peristaltic waves, this causes the characteristic cramping colicy pain. Continued obstruction results in a progressive distention of the loops above the obstruction. Many of the disturbances in the bowel functioon are produced by the intestinal distention and (Gatch) the distention of the intestine is a defensive action of the bowel to protect its blood flow because this blood flow through the intestinal wall depends on both the intraintestinal pressure and the diastolic pressure in the blood vessels, so, when the intraintestinal pressure equals or is greater than the diastolic pressure, the intestinal flow ceases. Vomiting thus occurs first reflexly and then in a progressive fecal character due to a disturbance of the normal gradient with reversed peristalsis. Progressive intestinal distention will stop normal peristalsis in all the rest of the intestine.

Just as distention first slows and then stops the intestinal flow, so absorptioon by way of the mesenteric veins will first be decreased and then stopped. Then solutes of low molecular weight pass readily through the bloodless bowel into the peritoneal cavity.

Many experiments have been done to try to prove that there is some absorption from the obstructed bowel by way of its lympathics, but it has been concluded (McIver, White, Gatch, Sperling, Wilkie) that there is either none or very poor absorption by way of the blood or lympth vessels.

Distention affects absorption: (1) by diminishing the volume flow through the intestinal wall; (2) by altering the physical forces involved in absorption; (3) by damage of the intestinal wall which affects both the vital activity of the mucosa and the physical forces which promote absorption.

Statements of various writers about the effect of distentioon on secretion are contradictory, but there is an accumulation of normal secretions and a varying admixture of transudates and exudates (depending on the presence or absence of strangulation), and it is to be remembered that in the upper segments of the bowel there is a more rapid accumulation of secretions.

Bacterial multiplication take place in the obstructed loops so that the small intestine which normally shows few bacteria becomes quickly loaded with microorganisms, (the presence of Cl. Welchii has been consistently demonstrated in loops in experimental obstruction).

Effects of the obstruction on the mesenteric vesselss Gangrene of the bowel can be caused by distention alone (decrease flow, venous stasis, circulatory stasis that brings anoxemia of the bowel wall, hemmorrhage, impairment of viability, gangrene and finally increase permeability and peritonitis), but gangrene is usually due to obstruction of the mesenteric vessels. These may be occluded by thrombor emboli, or they may be compressed by twisting or incarceration of a loop of bowel beneath an adhesion or by the ring of a hernia. Arterial obstruction is much less dangerous to the bowel than venous obstruction. (Incarceration usually obstructs the mesenteric veins but not the arteries, this ruptures the capillaries of the bowel because it subjects them to the full force of the systolic pres-

sure, gangrene and putrefaction follows). Distention will protect the capillaries of the bowel against rupture, this explains why bowel incarcerated in a hernia is usually tightly distended (and also explains why it is so seldom gangrenous)(Gatch).

The gases found in obstructed bowel are: nitrogen 70 per cent, carbon dioxide 6 to 12 per cent, oxygen 10 to 12 per cent, hydrogen sulfide 1 to 14 per cent and small amounts of methane and hydrogen(Morton, Schilling). The source of these gases is principally swallowed air which contributes 68 per cent, the remaining 32 per cent arises principally from diffussion into the obstructed loop from the blood stream and from putrefaction.

Intestinal Pathology. The intestine is found with marked distention above the obstruction and collapsed loops below. The distended loops may reach three to four times normal size. The walls become uniformly dusky red and there is evidence of dilatation of the capillaries and small blood vessels. There is usually edema of the wall of the bowel. The splanchnic engorgement in the area of obsrtuction is perhaps the most striking pathological lesion. When the distention has been considerable it is not at all unusual to find areas of focal necrosis in the mucosa specially in the antimesenteric border, where the blood supply can be most effectively shut off.

Sometimes this necrotic areas involve the entire wall of the bowel and only the serosa prevents perforation. The mucosa is deeply injected and always contains hemorrhagic patches, there may be acute and chronic inflamatory cell infiltration. The contents of the obstructed loops are usually foul smelling, reddish brown fluid with a peculiar cadaveric odor, quite characteristic when once perceived, combining the odors of decomposing tissues and blood. Peritonitis may be present and should be considered a complicating rather than a primary factor. Calihan et al reported an incidence of peritonitis of 55 per cent in fatal cases of intestinal obstruction. There are no changes of consequences noted in the heart, lungs or central nervous system; the liver and kidneys may at times show a little cloudy swelling but histological changes are in no way characteristic.

Systemic effects of small bowel obstruction. These are different and vary with the level of obstruction, the presence or absence of strangulation and the length of time that obstruction may have been present.

Effects of simple high obstruction. Productive and persistent vomiting, weakness, muscular tremors, oliguria, tachycardia and finally coma are the main symptoms; dehydration and alkalosis the striking findings. Prevention of absorption of the gastrointestinal secretions (from 5 to 7 liters of saliva, gastric juice, pancreatic juice, bile and intestinal secretion) by vomiting, robs the plasma of an immense quantity of water that is accompanied by a great loss of electrolytes. The evidence seems conclusive that death from untreated high obstruction is due to acute loss of water and electrolytes; this is suported: (1) by the magnitude and serious consequences of this loss; (2) by the fact that animals with high intestinal fistulas through which secretions of the upper gastrointestinal tract are drained to the exterior show the same symptoms, have the same blood chemistry findings and die in the same length of time as animals with high intestinal obstruction; (3) by the experimentally demonstrated fact that when secretions lost by vomiting due to high obstruction are returned to the bowel through an enterostomy below the site of obstruction, life and good health are maintained.

Hartwell and Hoguet were the first in recognizing the importance of replacement of salt in intestinal obstruction, Haden and Orr in a long series of investigations established the facts of a constant reduction in chlorides in all simple obstructions. Gamble and McIver outlined the importance of sodium in the maintenance of the acid-base balance; after Darrows works about potassium changes in children with diarrhea and vomiting, the role of potassium in body fluid pathology has added greatly to the understandings of electrolyte changes.

Effects in simple low obstruction. Dehydration, electrolyte loss, blood volume reduction with hypoproteinemia, shock and circulatory collapse and death are progressive steps in simple low obstruction; this is explained by Gatch and Battersby: (a) that intraperitoneal loss of blood protein is considerable when the bowel is inflated; (b) that blood concentration occurs even when the bowel is inflated with pressure too low to damage it or to cause any noteworthy loss of fluid into the peritoneal cavity; (c) that experiments shows that distention of the stomach causes more rapid development of blood concen-

tration and earlier death than inflation of the bowel.

The same authors believe that blood concentration is due to interference with respiration, by damage of capillarly endothelium of the whole body (because of asphyxia caused by bowel distention) with escape of blood proteins into the intercellular spaces. Alkalosis and electrolyte loss has a great deal to do with blood concentration and blood protein loss.

Effects in colonic obstruction. Symptoms and signs are less prominent, even with great colonic distention; in these cases, obstipation, distention and abdominal pain are marked, and the other signs such as vomiting with dehydration and blood concentration occur late. This explains clearly why colonic obstruction is better tolerated by these patients, and it is generally believed that toxemia has a more important role in this process. When the iliocecal valve is incompetent the obstruction is essentially the same as a low ileal obstruction.

Effects in strangulation obstruction. When strangulation is present in either high or low obstruction the problem is much more acute; reduced blood volume and circulatory collapse are early prominent features, and, as always, there is simple obstruction proximal to a gangrenous segment of bowel. The signs of simple obstruction will be added, with dehydration and alteration of the acid-base balance.

The effects of gangrene of the bowel depends upon what part of the bowel and what length of the bowel are involved and also upon the cause of gangrene.

Loss of blood to the circulation in cases of mesenteric thrombosis is sufficient in itself to account for death. In cases in which short segments of bowel are incarcerated that loss of blood will be inconsequential and the chief effects will be due to obstruction and infection of the gangrenous loop. Observers are amazed at the different reaction of patients to infection and the power of peritoneum to wall off and prevent spread of infection. (Recent publications have established the finding of an abnormal pigment, a hemin derivative not previously reported in vivo, first in the gut lumen about 12 hours after strangulation, then in the peritoneal cavity and finally in the blood stream(Nemir, Hawthorne, Cohn). Notwithstanding all these facts there is no doubt that infection has much to do with the local and systemic effects of strangulation of the bowel is the chief cause of death from the lesions.

Classic theories about death in intestinal obstruction. For a long time three theories have been presented to explain the cause of death in intestinal obstruction. The nervous reflex theory attributed the collapse and lethal effects of intestinal obstruction to an irritation of the nerve filaments of the intestinal wall (comparable to the collapse caused by trauma to the abdomen). Repeated experiments have proved that denervation has but little efect on survival time(Fine, Rosenfeld(Gendel).

The theory of the bacterial infection of the organism by passage onward of bacteria from the intestinal lumen into the blood stream and peritoneum and the theory of autointoxication were proven false with the studies in dehydration which prove that obstructed animals can be maintained a long time by the administration of salts and water.

Circulating blood of animals dying of intestinal obstruction is nontoxic to normal animals; strangulated loops contents may be introduced into the normal intestine without effect; Wangesteen and Chum claim that normal secretions are as toxic as the fluid above the points of obstruction. The theory of mucosal origin of the toxin is controverted by the lack of toxicity of mucosal preparations when bacteria are eliminated. As no absorption can be demonstrated from the obstructed loops, bacterial infection cannot be accepted, besides no bacteria have been found in the circulating system. All observers are agreed that the higher the obstruction the more fatal is the outcome. At present in light of more recent studies most of the lethal changes can be explained on the basis of mechanical factors and metabolic disturbances leading to a reduction of body fluids and circulating blood volume

Summary

The local and systemic effects in the body of the different types of intestinal obstruction have been summarized.

There is not one theory to explain the cause of death by intestinal obstruction; nervous reflexes, intoxication and infection all have to be considered in variable degrees depending on the type of obstruction.

Simple obstruction at any level in the absence of dehydration and distention is not a lethal process.

When distention occurs rapidly, strangulation.

results, and the fatal chain of events can be explained largely on the basis of infection and local plasma and blood loss with electrolytic disturbances.

When distention occurs more slowly without evidence of strangulation, dehydration and starvation alone may account for death.

BIBLIOGRAPHY

1. Physipathology of Intestinal Obstruction.—J. Missouri M. Ass 16-402 Dec. 1919.
2. Motor activity of distal bowel in Intestinal Obstruction.—Wangesteen O. Carlson. Proc. Soc. Exper. Biol. and Med. 27:676, 1930.
3. Miura Y. An experimental study in Pathogenesis of Ileus. Keijoj. Med. 3:109, 1932.
4. Stout, Gurn: The Pathological Physiology of Ileum as a Basis for Treatment. The American Journal of Surgery, 19:283 February 1933.
5. Holt, Herbert: The Pathology of Acute Strangulation of the Intestine. The British Journal of Surgery, 21:582 (April) 1934.
6. Donaldson, J. K. and Stout, B. C., Mechanism of Absorption in Intestinal Obstruction with Surgical considerations, Texas State Journal of Med. 30:455 (Oct.) 1934.
7. Mullen, P. B., Clinical Pathological Phases of Intestinal Obstruction. Western Journal of Surgery. 44:636 (Nov.) 1936.
8. Storck, Ambrose, Rothschild, J. E. and Alton, Ocshner: Intestinal Obstruction due to intraluminal foreign bodies, Annals of Surgery, 109:844 (May) 1939.
9. Gatch and Battersby: The two stages of Bowel Distention and the effect on the Volume and Concentration of the Blood, Archives of Surgery, 44:108 (Jan.), 1942.
10. Gallart Mones F. Physiopathology of the Syndrome of Acute Obstruction of the Small Bowel, El Dia Medico, 17:317 April 9) 1945.
11. Sawyer, Kenneth C.: The Management of Acute Intestinal Obstruction, Northwest Medicine, 45:735 (October) 1946.
12. The Diagnosis and Treatment of Acute Malignant Obstruction of the Large Bowel, New Orleans Medical and Surgical Journal, 100:397 (March) 1948.
13. Diagnosis of Intestinal Obstruction in the Newborn, Carlson et al. California Medicine, 70:240 (April) 1949.
14. Gamble, Hugh A.: The Roll of Obstructive Enterostomy in the Treatment of Obstruction of the Small Intestine. Southern Medical Journal, 42:480 (June) 1949.
15. Parssonet, Eugene: Diagnosis and Management of Small Bowel Obstruction, Journal of the Medical Society of New Jersey, 46:270 (June) 1949.
16. Vaughn, Arkell M.: Acute Intestinal Obstruction, Illinois Medical Journal, 97:20 (January) 1950.
17. Cole, Warren H.: Intestinal Obstruction, California Medicine, 73:384 (Nov.) 1950.
18. Barnes, Bernard: Acute Small Bowel Obstruction, Journal of Iowa State Medicine Society, 41:43 (February) 1951.
19. Mahoney, E. B. and Sherman, C. D.: The Management of Acute Small Bowel Obstruction, New York State Journal Of Medicine, 51:370 (February 1) 1951.
20. Putney, C. W.: Intestinal Obstruction, Virginia Medical Monthly, 78:342 (July) 1951.
21. Coler, F. R. and Berry, R. E.: Fluid and Electrolytic Balance in Intestinal Obstruction, Minnesota Medicine, 34:414 (May) 1951.
22. Scudder, J., Swemer, R. L. and Truszkoswki: Potassium in Acute Intestinal Obstruction, Surgery, 1:74, 1937.
23. Randal, H. T., Habif, Lockwood and Werener: Potassium Defficiency in Surgical Patients, Surgery, 26:341 (Septmber) 1949.
24. Taylor, Ross, Potassium In Electrolytic Balance. Journal of the Michigan State Medical Society, 49:793 (July) 1950.
25. Evans, Everett I.: Potassium Defficency In Surgical Patients, Annals of Surgery 131:945 (June) 1950.
26. Crews, E. R.: Potassium Depletion. Texas State Journal Of Medicine. 47:291 (May) 1951.
27. Darrow and Pratt.: N. England Journal Of Med. 242-978 1950.
28. Nemir, P.: Progress Report In Intestinal Obstruction. Am. Journal of Medical Sciences. 958-198 (February) 1952.
29. Laufman, H., Tanturi. Furr.—Recovery of Bacterial Enzymes From Thoracic Duct In Intestinal Strangulation Obstruction. Surgical Forum, Saunders 1951-129.
30. Gatch: Intestinal Obstruction. Lewis Practice of Surgery. Vol. VII Ch. 6, 1951.
31. Turmen, H. Intestinal Obstruction. Bockus Gastroenterology, Ch. LV, 258, 1944.
32. Morton, J., Schilling, J.: Obstruction of Small Intestine. Cyclopedia Of M. S. and S. Davis. Vol. VIII. 433-456, 1951.
33. Wangesteen, O. H.: Intestinal Obstruction 2nd Ed. 1942.
34. Forgue. Occlusions Et Obstructions Intestinals. Traite du Patologie Ext. 1934.

PHOENIX Clinical CLUB

PHOENIX CLINICAL CLUB CASE DISCUSSION

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-five-year-old woman entered the hospital because of hematuria.

Ten days before admission the patient first noted hematuria associated with frequency and pain in the left flank. Three days later she entered another hospital, where x-ray films of the abdomen were said to reveal no "stones". Following a bladder irrigation the bleeding ceased for about one week and she was discharged from the hospital. The day following discharge bright-red blood and some clots were passed, accompanied by pain in the left side.

There was no history of recent weight loss. Thirteen years previously a hysterectomy had been performed for the removal of a "benign tumor".

On physical examination there was a questionable fullness in the region of the left kidney. The remainder of the examination was negative.

The temperature was 99.6°F., the pulse and respirations were normal and the blood pressure was 135 systolic, 80 diastolic.

Examination of the blood disclosed a hemoglobin of 10.5 gm., a red-cell count of 3,280,000 and a white-cell count of 11,900. The urine was cloudy red in color, had a specific gravity of 1.020 and gave a four plus test for albumin; the sediment was loaded with red cells. The serum nonprotein nitrogen was 29 mg. per 100 cc.; the Hinton test was negative.

An intravenous pyelogram on the day following admission demonstrated kidneys of normal size and shape. A normal kidney pelvis and ureter were visible on the right. During a 45-minute period no excretion took place on the left. The urinary bladder contained a large filling de-

fect. (Cystoscopy was negative). A left retrograde pyelogram showed the lower calyx pressed on and displaced upward by an approximately round mass. On the periphery of the mass there were small areas of calcification. The upper ureter was displaced medially by the mass.

Urine taken on the third hospital day by catheter from the left ureter was loaded with red cells and gave no growth on culture.

On the fourth day the patient was given a transfusion and an operation was performed.

———

PALMER DYSART, M.D.

In the presence of an obvious space-consumlesion of the left kidney, palindromic unilateral renal purpura does not have to be considered as an explanation of the hematuria which was the major symptom and finding in this case. Likewise, renal pelvic and ureteral causes can be eliminated. Aparently, also, extra-renal causes do not require consideration for it is stated that intravenous pyelogram demonstrated kidneys of normal size and shape without any described distortion from extrinsic pressure. It is stated, perhaps paradoxically considering the normal description of the size and shape of the kidneys, that the upper ureter was displaced medially by the mass in the lower pole of the left kidney. To freely grant the veracity of both statements regarding the interpretation of the pyelographic findings would intimate that the mass displacing the ureter does not have the same radiolucency of renal tissue, and may not be a solid tumor. Other than this there is no statement nor inference regarding the radiographic density of the mass, although there must be some evident difference between it and the renal density to permit its description as an approximately round mass, although the small areas of calcification described on its periphery may be the means by which it was outlined. The size of this mass is not stated.

As for the aparently conflicting statements about a large filling defect in the urinary bladder while cystoscopy was negative, time could be spent on that, but discussion of space-consuming lesions of the kidney may be more profitable, at least from a didactic standpoint.

The anemia could be the result of many causes, but for lack of more information, only two conditions can be considered; hemorrhage from the left kidney and the debilitating effects of malignancy. There is not much information given which will assist in differentiating between these two. There is no mention of this patient's general condition, her weight, or any inference of progressive changes.

So much for the stated facts. Now, one deducible fact stands out; that is that calcification spells chronicity. Chronicity mitigates against primary malignancy, but does not rule it out, nor is secondary malignant degeneration eliminated by it. Calcification is found occasionally in malignant lesions.

Calcification in the wall of a simple serous cyst of the kidney is seldom seen, but it is found frequently in echinococcus cysts. Echinococcus disease is rare in the United States. The kidney is involved in about 2.5 per cent of instances. Such a cyst of the kidney is most often mistaken for renal malignancy or simple cyst. In about 20 per cent of these cysts the wall becomes calcified and degeneration of the contents results.

There is another type of cyst whose wall usually becomes calcified, and although it is not actually a true renal cyst, it is classed with them. This is the perirenal cyst, a rare clinical entity which is intimately associated with the fibrous renal capsule and is distinguished from pararenal cysts which are external to the fibrous renal capsule. Neither are directly associated with renal substance. It is difficult to explain the origin of a cyst so intimately associated with the renal capsule on a developmental basis although embryonic rests from Wolffian or Mullerian ducts is a possibility. Trauma with hematoma of the renal capsule and subsequent cyst formation is suspected but in the few cases reported in the literature definite evidence of previous trauma is absent.

Before discussing the common types of renal tumors that must be considered in the diagnosis of the space-consuming lesion presented, there is an unrelated group of lesions which is rare, but without the final evidence of pathologic tissue examination cannot be ruled out. This group consists of progonoma, teratoma, choristoma and hamartoma. The common factor which places them in a group is the abnormal embryonic developmental growth control of tissue, and such tumors may, like normal adult tissue, develop true malignant features.

Progonoma is the appearance and persistence of tissue resulting from fetal atavism to a stage which does not occur in the life history of the species, but which disappeared during the evol-

utionary phase of development from its ancestral forms.

The term teratoma has a restricted application to a group of tumors composed of recognizable tissues and complex organs with a lack of orderly arrangement, derived from more than one embryonic germinal layer.

Choristoma is a neoplasm of abnormally placed normal tissue developing from a displaced embryonic anlage.

Hamartoma is a tumor due to overdevelopment of some tisue element which belongs normally at the site where it is found, or to an abnormal relationship of a normally situated tissue element. Although these lesions are composed of mixed elements, they are not true teratomas, and are essentially benign. In the urinary tract, hamartoma has been found mainly in the kidney cortex. It may occur clinically as an isolated entity or as a part of the syndrome known as tuberous sclerosis complex, where the lesions represent a widespread developmental anomaly, often hereditary, in which the primary abnormality lies in the faulty differentiation of tissue rather than of body units, although the latter may be included. The lesions represent a dysplastic rather than a neoplastic development, and can occur in any tissue of the body. Renal tumors occur in 80 per cent of the cases, and are rarely diagnosed during life, probably because they are quite benign and asymptomatic except for infrequent hematuria, and because patients with tuberous sclerosis complex usually die early in life. The clinical diagnosis of this complex is possible if two or more of the following features can be demonstrated: mental retardation, epilepsy, adenoma sebaceum, phacoma of the retina, multiple mixed tumors (hamartomas) of the kidney, and a familial history of the disease.

A review of the literature dealing with renal tumors by Moore reveals that approximately 95 per cent are malignant and that the majority of these are carcinomas or adenocarcinomas of cortical origin of the type formerly designated hypernephromas. Renal tumors fall into two rather distinct age groups; those of infancy and childhood, the majority of which are of mesoblastic origin; and those occurring after middle age, relatively few of which are of this type. In 1948 Culp and Hartman reviewed the literature concerning tumors of mesoblastic origin in the adult, and advocated a simplified classification. Embryonal nephroma arising from the pelvis is termed a mesonephric nephroma, and originating in the cortex is a mesoblastic nephroma which may be carcinoma, sarcoma, mixed cell or undifferentiated. Such tumors are rapidly growing and are accompanied by a lower incidence of gross hematuria.

Foot, Humphreys and Whitmore in a review of 295 cases of renal tumor in which there was pathologic confirmation classified these tumors upon a basis of their tissue origin and found 24 benign and 271 malignant tumors. Of the malignant tumors 210 were carcinomas derived from renal tissue, 47 were from embryonal rests, nine were derived from supportive tissue, and five were from extrinsic sources by invasion or metastasis.

They concluded that histologic factors which are of prognostic value following nephrectomy are that those renal cell tumors with clear regular cells having isomteric nuclei, arranged in cords and strands with thick dense septa offered the best prognosis; while those with irregular granular cells having anisometric muclei arranged in tubules and papillae with irregular thin septa offered the poorest prognosis. Hemorrhage and cystic degeneration were considered favorable factors of secondary importance.

Size of a malignant tumor is also of prognostic importance, for they are usually surrounded by a definite fibrous capsule during their early growth. Penetration of this capsule is a late phenomenon. With respect to the relationship of size of a tumor to metastasis, Bell in a study of 153 malignant renal tumors found that of those under 5 cm. in diamenter, only 7 per cent had metastasized, whereas 83 per cent of those over 5 cm. in diameter had metastasized.

Cysts of the kidney may be of any size, either single, multiple, or multiloculated. They may develop at any point within the renal parenchyma. They rarely produce the severe constitutional symptoms of cortical tumor, such as weight loss, emaciation, anemia, fever and the other findings of malignant neoplasms. They may mimic gastrointestinal diseases or produce local or referred pain purely by the pull of their weight. Hematuria is not uncommon. Most renal cysts of this type are asymptomatic and have been discovered inadvertently during the course of x-ray or general physical examination.

The most important diagnostic feature is the appearance of the x-rays in which the cysts often

have a distinctly different appearance than solid tumors. The mere fact that a large, circular mass is found attached to the upper or lower pole of the kidney without evidence of metastasis or constitutional symptoms alone suggests cystic disease instead of cortical renal tumor. Renal cysts are more likely to produce a circular shadow with an even contour in the x-ray film and as a rule do not result in much change in the outline of the kidney. The extent of the deformity in the calcyces and pelvis depends on the position and size of the cyst. The calyceal and pelvic defect is usually crescentic and even in outline rather than irregular as when an infiltration process is present. Cysts tend to grow away rather than into the kidney substance so that the involvement of the cortex is often minimal unless the cyst happens to be located in the center of the kidney. In tumor the density is likely to be greater than that of cyst, and in the latter the outline of the psoas muscle may not be obliterated.

Infection may constitute or simulate a space-consuming lesion of the renal parenchyma. An abcess or carbuncle of the kidney may be located anywhere in the kidney substance. Cicatrization incident to chronic pyelonephritis may produce a deformity that resembles a space-consuming lesion.

Malformations of the renal pelvis frequently simulate a space-consuming lesion of the parenchyma. An appearance of spreading apart of the calyces may be produced by bifid kidney, and less commonly as the result of malrotation which usually yields the picture of diffuse deformity. Malformation of one calyx may give the pyelographic picture of compression or elongation. This appearance may also be produced by peripelvic fat accumulation.

Following injury, the presence of blood or the development of scars may produce a deformity suggestive of a mass within the kidney.

Clinically, it is often impossible to diffenentiate between these malignant and benign lesions. Various symptoms and signs may be helpful, yet none are pathognomonic. The history may suggest a traumatic lesion. a febrile course may indicate a carbuncle or abscess, but the differentiation between early tumor, cyst or anomalous formation of the renal pelvis may present tremendous diagnostic difficulty. While bleeding from the kidney is more suggestive of renal tumor, it also occurs in approximately ten per cent of serous cysts. Although a perfectly round pyelographic filling defect may suggest a cyst, the identical findings may be produced by early neoplasm. An elongated cephalic calyx may suggest renal neoplasm as well as anomalous formation of the pelvis. While malignant renal tumor may be suspected because of gross hematuria or microscopic blood in the urine when suspicious defects are seen in pyelograms, but if the Papanicolaou smear is negative for malignant cells, only by actual tissue examination either by biopsy or following nephrectomy can a certain diagnosis be made.

Although conservatism is a prime consideration in renal surgery, many kidneys have been sacrificed needlessly because of suspected neoplasm. When exposure of the kidney reveals an obviously benign lesion, such as a cyst, removal of the cyst is the accepted procedure. However, in cases in which the findings suggest the possibility of tumor, if a benign lesion is not evident upon external inspection, nephrectomy has been considered mandatory. A possible alternative, incision into the kidney for diagnostic purposes, has been condemned, since it is alleged that there is danger of disseminating tumor cells if a malignancy is present, and a small tumor may escape detection.

The hazard of disseminating tumor cells may be greater in a vascular organ such as the kidney. It is recognized that most renal tumors are highly malignant. Malignant cells have been shown to be less cohesive than normal cells, and metastasis is enhanced by manipulation.

I have found two references in the urological literature of the past year regarding methods of biopsy of the kidney that contradict the customary attitude toward such a procedure. One is applied to suspected cysts, and the other is a method of safely exploring the kidney in the presence of possible malignancy.

Ainsworth and Vest at the University of Virginia Hospital advise the aspiration of a suspected cyst with a spinal needle and injection of excretory contrast medium. As a precaution against the remote possibility of concomitant malignant tumor Papanicolaou smears are made. If a hemorrhagic cyst is encountered the possibility of malignancy is 25 to 35 per cent. It has been generally accepted that surgical exploration for all space-occupying lesions of the kidney is an immediate necessity, but it is the belief of these authors that exploration is neither desirable nor



Dramamine® in Vertigo

The remarkable relief afforded by Dramamine in motion sickness has led to studies of its possible value in allied conditions.

Dramamine apparently depresses hyperstimulation of the vestibular apparatus. Thus it is an effective means of relieving the nausea and vertigo which characterize dysfunctions of the middle ear.

Accepted Uses for Dramamine

(BRAND OF DIMENHYDRINATE)

MOTION SICKNESS

NAUSEA and VOMITING associated with
- pregnancy
- drugs (certain antibiatics, etc.)
- electroshack therapy
- narcotization

VESTIBULAR DYSFUNCTION associated with
- streptomycin therapy

VERTIGO in
- Ménière's syndrome
- hypertensive disease
- fenestration procedures
- labyrinthitis
- radiation sickness

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

SEARLE *Research in the Service of Medicine*

necessary in most instances of so-called solitary cysts of the kidney when the diagonsis can be confirmed. When symptoms of pain, discomfort, excessive hematuria or evidence of progressive cortical damage are present, then excision is in order. Operations for the removal of cysts from the kidney are not always simple and the necessary suturing to control bleeding may inactivate more cortex than would the presence of the cyst had it been allowed to remain. Two controversial questions will arise with respect to this procedure. One concerns the inadvisability of inserting a needle into a possibly malignant tumor, but the authors believe the prediction of a cyst can be made with considerable accuracy. The second point that of the possibility of overlooking a coexistent malignant tumor is important. There are few references in the literature concerning the association of malignant cortical tumors and cysts of the kidney. The renal cystogram advocated would show irregularity of the cyst wall in the presence of papillary tumor as in papillary cystadenoma. Also, there have been few chance associations between separate cysts and solid tumors.

Weyrouch, Wanless, Goebel and Scott of Stanford University Medical School, University of California Medical School and the Veteran's Hospital in San Francisco have studied the dangers attending biopsy of the kidney in the presence of a malignant tumor, and developed a method of procedure. It was found by them that the safety period for occlusion of the vascular pedicle is more than adequate to permit the most painstaking biopsy, including time for frozen section if necessary. By the use of radioactive tracer substances they have shown with tourniquet occlusion of the renal pedicle and clamping of the ureter there is little possibility of dissemination of tumor cells during biopsy procedure.

The successful use of renal biopsy depends upon the careful selection of cases. It is indicated only in those patients with pyelographic findings suggestive of a small, localized, space-consuming lesion of the parenchyma. Biopsy is not indicated when the diagnosis of malignant tumor has been established, as by Papanicolaou technic, when a kidney is functionless, in large neoplasms which are obvious on external inspection, nor for obscure, unexplained bleeding from one kidney when the pyelogram yields no clue to the nature or location of the lesion.

In the case at hand I do not believe that an accurate pathologic diagnosis can be made from the information given except on a basis of probability. It is even possible that a dormant metastasis to the left kidney occurred from the "benign tumor" for which a hysterectomy was performed thirteen years before. I suspect the presence of a solitary renal cyst, but for reasons covered in the discussion, and from 21 years experience in the discussions of the Phoenix Clinical Club, I doubt the wisdom of making such a simple diagnosis. And besides, such a diagnosis would probably not account for the areas of calcification found by x-ray. Therefore, I will make a diagnosis of space-consuming lesion of the lower pole of the left kidney, probably a cortical carcinoma.

Discussion at Massachusetts General Hospital

Dr. Walter S. Kerr, Jr. A fifty-five year old woman, ten days before entering the hospital, noted hematuria associated with pain in the left flank and with frequency. The bleeding persisted for approximately three days, stopped for about one week and then recurred. Again, it was accompanied by pain in the left side. The patient had noted no weight loss or previous symptoms referable to the urinary system.

One examiner noted a questionable fullness in the left flank. Otherwise the physical examination was negative. Cystoscopy was negative and a retrograde pyelogram showed a "large mass in the region of the lower pole of the left kidney." Laboratory studies revealed the expected anemia and a urine loaded with blood.

Thus, I am faced with the problem of deciding the nature of a large mass in the lower pole of the left kidney of a fifty-five-year-old woman who has had severe hematuria accompanied by left-flank pain on two occasions in the past ten days.

Dr. McCort, would you kindly discuss the x-ray findings?

Dr. James J. McCort. The intravenous pyelogram is not available. We have one film taken during the retrograde pyelography. The catheter is seen in the left ureter. After the retrograde injection of dye, a large soft-tissue mass in the lower pole of the left kidney is visualized. There is a suggestion of a slight flecky calcification in the periphery of this soft-tissue mass. The inferior calyx is not visualized. Flattening and upward displacement of the middle calyx and pelvis with some intraluminal protrusion of the mass into the left kidney is apparent. Wheth-

er this represents blood clot or tumor extension cannot be determined. There is also displacement of the upper third of the left ureter toward the midline. The psoas muscles are symmetrical. The visualized bones show no abnormality.

Dr. Kerr. The x-ray appearance of the lower pole of the left kidney in this case could be caused by a number of tumors, most of them unlikely. Solid retroperitoneal tumors such as lipomas, fibrosarcomas and their variations have on occasion caused the calyceal and pelvic pattern noted and have appeared to be part of the kidney. Usually, however, retroperitoneal tumors, if they affect the kidney at all, only cause displacement, without changes in the calyceal pattern.

Rare tumors arising in the kidney, such as solid benign tumors, teratoid tumors and hamartomas, are to be thought of only from the point of view of completeness. Carcinoma of the kidney pelvis will have to be mentioned in passing; these tumors usually cause hematuria before they become as large as this mass. Carcinomas of the kidney pelvis are more likely to give a positive Papanicolaou strain than renal-cell carcinomas, which originate in the cortex of the kidney. A perinephritiv abscess is a remote consideration in view of the white-cell count and the history.

A solitary cyst and a renal-cell carcinoma (hypernephroma) are the most likely bets in this particular case. They are the most common kidney masses in adults. The x-ray appearance of this mass could be caused by either a cyst or a hypernephroma. As Dr. McCort has pointed out, there is calcification in the periphery of the mass. In my experience calcification is more common in renal-cell carcinomas than in cysts. Arteriograms are said to be helpful in differentiating these two lesions. However, the evidence they produce is not sufficint for me to decide to not operate—especially when tumors may occasionally occur within cysts. Medial displacement of the upper portion of the preter is the last of the x-ray findings to be discussed. Such displacement is not caused as often by cysts as by tumors or large metastatic nodes.

Renal-cell carcinomas not infrequently metastasize or reach palpable size without causing hematuria, because they arise in the cortex of the kidney. However, they do bleed more frequently than cysts. The amount of hematuria in this case was sufficient to cause clots and a red-cell count of 3,280,000. I have not seen a cyst bleed to this extent. The left-flank pain accompanying the hematuria could be caused by bleeding into the mass, bleeding into the pelvis of the kidney or bleeding from the mass into the surrounding tissue. I imagine it was due to bleeding into the mass, for the pain apparently did not persist throughout the period of hematuria, as it might have done if caused by clots passing down the ureter. Palpation of cysts and hypernephromas is often possible. Occasionally a cyst will be decidedly soft and compressible, or a tumor will be nodular. Usually, however, palpation does not aid in deciding between them.

Before ending this discussion, I should like to emphasize that in spite of the information one gains from cystoscopic examination, Papanicolaou stain, pyelograms, perirenal air insufflations, arteriograms and other studies, the nature of many masses of the kidney can be determined only by visualizing the lesion. Unless there are adequate reasons for not operating there is only one course to follow—and that is to explore the kidney.

CLINICAL DIAGNOSIS

Tumor of kidney.

DR. KERR'S DIAGNOSIS

Renal-cell carcinoma.

ANATOMICAL DIAGNOSIS

Hematoma of peripelvic fat with pressure necrosis of surrounding fat and kidney.

PATHOLOGICAL DISCUSSION

Dr. Robert E. Scully: At operation the surgeon encountered a mass deeply occupying the lower hilus and inferior pole of the left kidney. In the belief that this was neoplastic, a nephrectomy was performed. On sectioning, the operative specimen proved to be only clotted blood surrounded by an irregular rim of soft, yellow necrotic tissue. The entire lesion measured 7 cm. in diameter and occupied both peripelvic fat and adjacent renal parenchyma; the pelvis and ureter were displaced medially. Microscopical examination disclosed organizing hemorrhage and necrosis of fat and renal parenchyma. The necrosis appeared by its peripheral localization to be a pressure phenomenon. Numerous sections were taken in an attempt to elucidate the pathogenesis of the hemorrhage. No lesions were found in the arteries except for a rather severe intimal fibrosis and hyalinization. Several veins

of medium size that lay in the hilus at the outskirts of the lesion showed areas of fibrinoid necrosis, and a few smaller ones contained organizing trombi. However, we regarded these changes as being secondary to the necrosis and not causative lesions.

A Physician: Perirenal hemorrhage has been described in periarteritis nodosa; in view of the vascular lesions you mention, I wonder if the hemorrhage in this case may not have been the earliest manifestation of some generalized vascular disease.

Dr. Scully. I do not believe so. In a follow-up letter received from the patient some four and a half years after operation, she stated: "I am in good health and have not been in bed a day since I left the hospital."

MORE TB BEDS FOR INDIANS

Tuberculosis, responsible for 23 per cent of the Navajo Indian death rate, will be attacked in a special project announced recently by the Bureau of Indian Affairs. The project will include contracting for approximately 400 additional beds at sanatoria off the reservation to supplement the present total of 115 beds available for TB treatment at reservation hospitals.

NEWS ITEMS

DR. KENT THAYER HEADS MARICOPA COUNTY SOCIETY

Officers for 1953 were announced by the Maricopa County Medical Society.

Doctors named were Kent H. Thayer, president; Lloyd Swasey, vice president; Wallace A. Reed, secretary-treasurer; John A. Eisenbeiss, Leslie B. Smith, Carlos C. Craig, E. Henry Running, Joseph Bank, Frank W. Edel, D. W. Melick, Marriner W. Merrill, Preston T. Brown, Howard Lawrence, Audrey G. Urry, and G. Robert Barfoot, board members.

Dr. Donald Polson was chosen president-elect for 1954.

ARIZONA BOYS RANCH

Dr. William Bishop has been elected to take over the presidency of the Arizona Boys Ranch board of directors for the coming year. Dr. Bishop, widely known orthopedic surgeon who has been identified with Phoenix civic affairs since coming here several years ago, has served on the board of Boys Ranch since its inception.

He succeeds Harold Scoville as president. Robert Jaap, vice-president of the First National Bank of Arizona, will be treasurer, and Al Waters continues in his post as executive secretary.

Vice presidents include George Miller, Boy Scout executive in Phoenix; George Babbitt, Flagstaff; Clarence Carpenter, Miami; the Rev. David Sholine of Tucson; and Ray Smucker of Yuma.

Continuing on the executive board are: Jack Barnes, Harry Bonsall, Sr., William Bourdon, Bruce Brockett, Charles A. Carson, Mrs. Ralph Cowan, Leighton Cress, Norman Fain, Eugene Mangum, Mrs. John Neal, Richard O'Hara, William Passey, Gov. Howard Pyle, Harold Scoville, M. H. Starkweather, Hollice Stevenson, Leo Ellsworth.

OBSERVE THE DATES

1953 Annual Meeting

TUCSON (Pioneer Hotel) ARIZONA

April 26 through 29, 1953

SUNDAY (April 26th) — Council, House (1st Session) and Blue Cross-Blue Shield Meetings — Golf Tournament — Tucson Country Club

MONDAY Through WEDNESDAY (April 27-29) — Scientific Sessions

TUESDAY (April 28th) — House (2nd Session)

WEDNESDAY (April 29th) — President's Dinner-Dance

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

Successor To

PATHOLOGICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. W. Watkins, M.D., Consultant Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The 31st annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held on August 31, September 1, 2, 3 and 4, 1953 inclusive, at the Palmer House, Chicago, Ill.

Scientific and clinical sessions will be given on the days of August 31 and September 1, 2 and 3. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association.

Full information may be obtained by writing to the executive offices, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

HILL-BURTON HOSPITAL CONSTRUCTION

Division of Hospital Facilities, FSA, reports that as of December 2, 1952, one new project had been approved for Hill-Burton grants in the State of Arizona, as follows:

Located at Winslow—Winslow Memorial, at a total cost of $199,724 including federal contribution of $99,862, to supply 24 additional beds.

Status of all Hill-Burton hospital construction in Arizona, including the above, is as follows:

Completed and in operation: 7 projects at a total cost of $3,340,501, including federal contribution of $1,132,516, and supplying 246 additional beds.

Under construction: 2 projects at a total cost of $6,086,549, including federal contribution of $1,523,230, and designed to supply 375 additional beds.

Approved, but not yet under construction: 8 projects at a total cost of $1,644,886, including $687,362 federal contribution, and designed to supply 224 additional beds.

The PRESIDENT'S *Page*

TRUMAN'S COMMISSION ON THE HEALTH NEEDS OF THE NATION

ON DECEMBER 18, 1952, THE PRESIDENT'S COMMISSION ON THE HEALTH NEEDS OF THE NATION RELEASED THE FIRST VOLUME OF ITS REPORT. THE PAST ADMINISTRATION HAS ENDED BUT WE ARE STILL BEING PLAGUED WITH SOME OF ITS OUT-MODED THOUGHTS AND IDEAS.

OUR TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION HAVE RELEASED A STATEMENT ON THE REPORT OF THIS COMMISSION. IT APPEARED IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION ON JANUARY 24, 1953. I STRONGLY URGE ALL OF YOU TO READ THIS REPORT IN ITS ENTIRETY.

NEARLY ALL OF THE COMMENTS CONTAINED IN THE COMMISSION'S REPORT HAVE LONG HAD THE THOUGHTFUL CONSIDERATION OF THE AMERICAN MEDICAL ASSOCIATION AND MANY OTHER ALLIED HEALTH GROUPS. FURTHERMORE, MANY OF THE SOLUTIONS PROPOSED HAVE BEEN THOROUGHLY AIRED IN THE HALLS OF CONGRESS AND REJECTED. THE REPORT AT PRESENT IS DEVOID OF SUPPORTABLE FACTUAL MATERIAL. THE BASIC PHILOSOPHY UNDERLYING IT IS QUITE EVIDENT; THE ARGUMENT IS THAT HEALTH IS CONDITIONED BY FOOD, HOUSING AND EDUCATION, SO THAT THE CONTROL OF THESE FACTORS, AS WELL AS HEALTH MEASURES PER SE, SHOULD COME UNDER THE DIRECTION OF AN "ALL WISE" FEDERAL GOVERNMENT. WITHOUT NAMING IT THE COMMISSION HAS DESCRIBED A "WELFARE STATE", IT MAY BE JUST AS WELL TO CALL IT BY ITS TRUE NAME, THE "SOCIALISTIC STATE".

THE COMMISSION HAS LITTLE TO OFFER THAT IS NEW. THE ISSUE PROPOSED FOR THE SOLUTION OF NEARLY EVERY PROBLEM IS ADDITIONAL FEDERAL FUNDS. ASIDE FROM THE QUESTION AS TO HOW THESE FUNDS ARE TO BE RAISED, IN THE BACKGROUND LURKS THE SHADOW OF FEDERAL CONTROL IN ALL THESE ENDEAVORS. THE CONTROL MAY COME DIRECTLY OR BY ESTABLISHED STANDARDS TO WHICH ALL STATES MUST CONFORM. THESE STANDARDS WILL NOT BE WRITTEN INTO LAW BUT WILL BE ESTABLISHED BY ADMINISTRATIVE REGULATIONS. IF THE PATTERN, LAID DOWN IN THE FORM OF BILLS, IS FOLLOWED THE ADMINISTRATIVE AGENCY WILL AUTHORIZE TO SET UP A PLAN OF ITS OWN IN ANY STATE THAT DOES NOT CONFORM TO FEDERAL STANDARDS.

ONE OF THE MOST PECULIAR ASPECTS OF THE COMMISSION'S REPORT IS THAT IT IS BEING PRESENTED IN THE REVERSE OF ITS PROPER ORDER. THE SCIENTIFIC AND LOGICAL APPROACH WOULD BE THE PRESENTATION OF FACTUAL MATERIAL AND ANALYSES OF THE DATA PRESENTED, COMPARISON OF THIS DATA WITH OTHER MATERIAL OF A LIKE NATURE, AND THE PRESENTATION OF CONCLUSIONS ON THE BASIS OF FACTS, AND FINALLY RECOMMENDATIONS AS TO THE ACTION. THE REVERSE HAS BEEN THE PROCEDURE IN THIS CASE.

OF COURSE IT IS NOT POSSIBLE AT THE PRESENT TIME TO ANALYZE OR EVEN UNDERSTAND THE REPORT UNTIL THE BALANCE OF VOLUMNS CONTAINED IN THIS REPORT ARE RELEASED. HOWEVER, AT THE PRESENT TIME IT APPEARS THAT THE HEALTH COMMISSION HAS SHOWN ABSOLUTELY NOTHING NEW, THAT WHICH IT HAS SHOWN CERTAINLY SMACKS OF THE SOCIALISTIC STATE.

THOMAS H. BATE, M.D., PRESIDENT
ARIZONA STATE MEDICAL ASSOCIATION

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 FEBRUARY, 1953 NO. 2

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Pboenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Pboenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Business Manager, 426 Heard Building
Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois



R. Lee Foster, M.D., Editor-in-Chief
of Arizona Medicine Journal

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should bave been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and bappy to help in any way possible.

EDITORIAL
THE SURGEONS RESPONSIBILITY

From time to time conflicts arise between physicians and patients many of which may be due to failure of the physician to inform patients adequately. Recently such a conflict arose in an emergency appendicitis operation over the employment by a physician of an anesthetist for a minor without the patient's legal guardian's knowledge.

It is true that most patients realize that anesthesia is necessary in the performance of surgical procedure. It is well, however, to always acquaint patients that an anesthetist is to be utilized, as some people apparently do not know that a general anesthetic may be necessary for certain operative procedures. It is only fair to our fine group of anesthetists that we do this not only so that they will not encounter difficulties in obtaining re-imbursement for their valuable services, but also to put them in a safe position of legal employment by the patient or relatives of the patient.

A surgeon's responsibility may occasionally be strained by the necessity of performance of emergency procedure on a minor when legal permission cannot be immediately obtained from those responsible for granting permission. In such instances the physician should not hesitate to do what is clearly necessary as an emergency, but in the absence of correct legal permission, a

physician *must* have adequate consultation by a colleague to justify his position. This should be in writing on the hospital record. The courts have always held that clear-cut emergencies can be treated properly pending obtaining permission, but it is the physicians responsibility to *prove* the clear-cut need, in the absence of legal authority. This consultation in writing is mandatory in every instance.

Misunderstandings will rarely occur if the physician exercises reasonable care and acquaints patients or guardians of the need for an anesthetist, or, in the case of an emergency too dire to await legal permission to proceed, of the employment of consultation of other qualified physicians who agreed that operative treatment had to be employed on a minor or unconscious adult before permission could be obtained by ordinary legal means.

MEETING NOTICE
AMERICAN GOITER ASSOCIATION

The American Goiter Association will hold its 1953 meeting at the Drake Hotel, Chicago, Illinois May 7, 8 and 9, 1953.

The program for the three day meeting will consist of papers and discussions dealing with goiter and other diseases of the thyroid gland.

STANFORD PRESENTS POST-GRADUATE COURSES

Stanford University School of Medicine will present the following Postgraduate Courses in June 1953: Cardiology, June 15-19; General Medicine, June 15-19; Surgery and Treatment of Fractures and Associated Trauma, June 24, 25, and 26; and General Surgery, June 22-26. The Stanford faculty will be instructors in these courses and the fee for each course is $75.00. Each course will be given all day.

Programs will be available in March and inquiries may be addressed to the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, California.

The Arizona Medical Association, Inc. Membership Report

Membership of the State Association on January 1, 1953, totalled 681, representing a net gain of 45 since January 1, 1952. During the past year 70 physicians were admitted as new members; 15 moved from the state; 2 were dropped from membership; 5 were deceased.

Included in the 681 membership total are 624 Active members, 31 Affiliate, 16 Affiliate-Military, and 10 Associate members.

AMERICAN COLLEGE OF PHYSICIANS

Course No. 2

"Studies in the Clinical Aspects and Diagnostic Procedures in Cardiovascular Diseases"

March 2 through 7, 1953

The University of Southern California
School of Medicine
Los Angeles County Hospital Auditorium
1200 North State Street
Los Angeles 33, California

George C. Griffith, M.D., F.A.C.P., Director

Minimal Registration: 50
Maximal Registration: 75

Fees: A.C.P. Members—$30.00
Non-members —$60.00

Additional information may be obtained from:

Mr. E. R. Loveland
Executive Secretary
American College of Physicians
4200 Pine Street
Philadelphia 4, Pennsylvania

RADIUM and RADIUM D+E

(Including Radium Applicators)

FOR ALL MEDICAL PURPOSES

Est. 1919

Quincy X-Ray and Radium Laboratories

(Owned and Directed by a Physician-Radiologist)

Harold Swanberg, B. S., M. D., Director

W. C. U. Bldg. Quincy, Illinois

TOPICS OF *Current Medical* INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M. D.

The theorists are waiting with assumed unconcern for the more practical results from CHEMOTHERAPY OF TUBERCULOSIS. . . . They can prove, by analogy and mathematics, that resistance of tubercle bacilli to several drugs is lessened when the drugs are given simultaneously. . . . Theory and practice worked out well with PAS and streptomycin, but isoniazid has been used with the other drugs for so short a time that one can't yet be sure. . . . It is the mode at present to use all the three until proof is available. The therapeutic effect, at least, will be better, and it MAY be safer.

The status of NURSING HOMES in California has been summarized by their Bureau of Hospitals. . . . About 9,000 beds are available in 450 Homes. Whether this is few or many for such a large state depends on your viewpoint, but an average occupancy rate of 83 per cent suggests that a considerable need exists. . . . The type of patients was diverse, as was the type of care, but ambulatory patients were given the assurance of protection and ill patients were given quite a range of medical-nursing procedures.

The monthly Alvarez item, lifted from his journal 'Modern Medicine', stresses the lack of excess hazard in OPERATING ON PATIENTS WITH A HEALED MYOCARDIAL INFARCT. . . . Brumm and Willins reported in 1939 that only about 4 percent of 257 patients with angina pectoris died of cardiac complication after surgery. . . . Hannigan & colleagues recently reviewed the situation in the Amer. Jour. Med. Sciences and found that the rate in coronaries was only 5.2 per cent compared with 3.4 per cent in a similar age group of normals. . . . Penthothal anaesthesia seems inadvisable, since it is more often accompanied by cardiac and respiratory complications. A fast and deft operation is least hazardous.

Doshay and Associates of Columbia University have described a drug combination for PARKINSONISM in NEUROLOGY. . . . The drug is called MK-02, and is made up of an antihistaminic radical (of Benadryl) and a parasympatholytic radical (of atropine). . . . Doshay may be remembered for work in other fields (tularemia, etc.). . . . The series is not large, but the side reactions are scanty (dry mouth 17%), and the muscular rigidity, spasm, contracture, tremor, and salivation were often relieved.

A Tucson trio is slightly ahead of the Arizona Medical Ass'n. in an attempt to obtain A TRAINED MEDICAL EXAMINER for Pima County. . . . Two Justices of the Peace have joined health Officer Dr. Lewis Howard in pleading with the county board of supervisors to appoint a trained M.D. pathologist to investigate deaths which occur without medical care. . . . Dr. Salsbury has pointed to the 105 persons in Pima County who were buried in the past year without a known cause of death. . . . The state medical association is preparing legislation which they hope may be enacted at the state level.

A question of precedence is still moot in the use of certain antibiotics. Does A FUNGUS INFECTION develop after one takes aureomycin, teramycin, et al., due to the absence of other organisms, or because of fertile terrain? . . . Are we blaming fungi when many mucous membrance lesions are due only to DRUG REACTION? . . . Probably all these factors are operative at times, and sometimes a harmless flora will become somewhat pathogenic. . . . It should also be remembered that 'all which is Candida is not moniliasis'. They may just happen to be there, and are not real 'superinfections'. . . . Dr. Perrin Long says that penicillin toxicity is usually allergic, but that Polymyxin B and Bacitracin are polypeptides and rarely if ever cause ALLERGIC response.

ISONIAZID has secretly been used in treatment of tuberculosis for about 18 months, and publicly for about nine. It is amazing therefore to find even early reports of success in an even more sluggish disease than tuberculosis—LEPROSY. . . . Latapi and Rubio of Mexico reported before the American Society of Tropical Medicine that 13 of 14 cases with nodular disease showed a substantial reduction of lesions, with 200 to 300 mg., per day over a period of 9 months.

LOS ANGELES MEDICAL AFFAIRS used to be regarded with raised eyebrows by many physicians east of the Sierra Madres, and with laughter east of the Mississippi. There was considerable reason for it, with scanty teaching facilities, ineffective medical groups, and very vocal quacks and non-medical 'healers'. . . . In the past dozen years the level of practice has been raised and the level of the eyebrows lowered. The various medical groups have originated several treatment methods; the medical societies and hospitals have very good programs; a new medical school has increased the chance and competition for staff work; and surprising ideas are given a hearing. . . . E. G., — The

Good Samaritan Hospital and U.S.C. have raided Philadelphia (for Dr. Hurley Motley) as well as the pockets of quite a few wealthy and dyspneic patients, to found a research unit for cardiorespiratory physiology. If this unit seems not unusual, select ten of the largest cities in the U. S. and find out how many are set up for such clinical studies. (We asked about it last June in Chicago, and no one even knew that such a service WASN'T available). . . . In another radical but logical move the Cal. Med. Ass'n. has announced a full-scale investigation of a variety of unproved cancer treatments. Claims for drugs and serums will be investigated, labelled, and the proponents disciplined if they are intransigeant. . . . The Cal. group is also a sponsor of the move to 'regenerate' and assimilate the osteopaths, a move now being considered on a national plane. Exclamation point, question mark!

Dr. Edmund Keeney of San Diego describes a little-used method of TESTING highly allergic children, BY PROXY. . . . Extensive skin-tests can be difficult, but also hazardous. A passive transfer of antibodies (in blood serum) is first effected from child to a healthy adult volunteer. The adult is then sensitive for a few weeks, and will react as the child would to skin-tests.

Home state boys again made good in national journal! Or, five Tucson physicians crash the J.A.M.A. with an article on the use of PHENYLBUTAZONE IN ARTHRITIS. . . . Next to appearing in ARIZONA MEDICINE, such publication is the high honor. Drs. Stephens, Yeoman, Holbrook, Hill, and Goodin are to be congratulated. If the drug is really good, it would be fine to have an article here. . . . The salutary effects were fairly frequent, but toxic effects were also rather common. . . . In any case, Hooray for clinical research in Arizona!

If this column needed a paragraph with A JOKE in it, we might lift the pun which a trade journal used to introduce a news note. . . . The news: a Minnesota doctor was indicted on 229 separate counts for peddling narcotics, and faced prison terms totalling 2,030 years. The introduction: Long Time No Fee!

One must update the anti-malarial news with a paragraph every few months. The present item sounds like real progress. . . . The Wellcome Research Laboratories, thru Dr. George Hitchings, is said to have a great new drug 'daraprin'. It is 12 times as powerful as the top-notch chloroquine which is now in use as a preventive in Korea. . . . Daraprin is so destructive of the malarial parasite in the blood that the effective dose is less than half a grain per week. It is said to be tasteless, inexpensive, and quite safe. General use in the whole population of an infested country could lead to a malaria-free race of mosquitoes, and further safety of the people.

Until we hear confirmation, the new "Q-Test" for diagnosis of pregnancy is only worth a shortened paragraph. . . . Claims,—Advertising in J.A.M.A. No lab specimen required. Can be done in office. Time required is about an hour. Accuracy is 96 to 98%. Cost is 60 to 80% less than other methods. . . . Mas des pues.

It would be hard to estimate the percentage of physicians who go beyond the surface relationship between CARDIAC FAILURE AND EDEMA. . . . Most of us could think up the trio of vascular pressure, blood proteins, and electrolytes. . . . Only a few would know the theory that sodium retention in heart failure is said to be due to hepatic congestion, with the failure of the liver to inactivate adrenal corticoids, which act on the kidneys to retain sodium. . . . The cordicoid hormone accelerates renal tubular reabsorption of sodium, with a secretion of P.P. antidiuretic hormone, with a resultant water retention. . . . Etc., etc., since this explanation may eventually prove too simple.

Dr. Edgar Allen of the Mayo Clinic has summarized the current status of therapy for HYPERTENSION in the Clinic 'Proceedings', and in 'Circulation'. A few general conclusions are of interest. . . . Medical methods are effective in many cases. Drugs are becoming more helpful, but are still far from ideal. Medical treatment should be tried at first, but only briefly if ineffective. If there are no major contraindications, the patient should then have sympathectomy while still in his "Golden period", when success is most probable. . . . There is no way of knowing which cases will be helped. Medical management can be used after surgery no matter what its success has been.

We recently treated a large area of herpes on a man's forehead with cortisone, and the result was dramatic and cosmetically satisfactory. . . . In writing down the report, a Walter Winchellism was invented, and it seems bad enough to mention here. The herpes was a SKINFLAMMATION, and the cortisone was in ideal THERABEAUTIC. . . . (What ever happened to W. W.?)

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 15th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 15th OF THE MONTH.

Material arriving after that date will be published the following month.

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix February, 1953

HBA Pays ALL Fees Promptly; Cuts Paper Work For Doctors

The Hospital Benefit Association likes to pay doctors' fees as quickly as possible—with a minimum amount of paper work for the doctor. The Association's simplified bill form which doctors can quickly and easily fill out was adopted for this reason.

This easy-to-use form lists all needed data. This information includes the patient's name, HBA membership number, the Diagnosis and Surgical Procedure and the surgeon's fee. Past experience shows that additional data is needed in only 3% to 4% of the total claims handled.

Additional information is requested only when the Association needs facts from the physician in order to reach an equitable decision regarding the coverage to which a member is entitled. This might be occasioned by a new membership, or by a membership issued with the written understanding that a pre-existing condition would not be covered.

Doctors Can Speed Payments

Doctors themselves can help speed up payments for their services by promptly sending the Association their bills together with the information needed to process claims.

Payments are made every working day of every month so that doctors won't have to wait for their fees. And no bill remains in our office more than five days if statements are complete and the patient's membership is in order.

The Hospital Benefit Association automatically sends a statement form to the patient to be given to the doctor. However, many doctors prefer to keep a supply on hand. We will be glad to send some to you. Write us at either the Home Office, First Street at Willetta, Phoenix, or 706 Valley National Building, Tucson.

Question Quiz
Do you know the answers?

Q. Does the HBA Surgical Plan Pay for wound repair, X-rays and treatment of fractures in the Doctor's office?

A. Yes—when as a result of an accident and if within 24 hours of the accident.

Q. How long does it take for doctors to receive their fees?

A. When information is complete and the patient's membership is in order, all bills are paid within five days.

Q. Can doctors help speed up HBA payment for their fees?

A. Yes—by promptly billing the Association and by giving necessary data in standard medical nomenclature.

Q. How frequently does the HBA pay doctors' bills?

A. Every working day of every month.

Q. May an HBA member go to the doctor of his choice?

A. Yes. HBA members may go to any physician (M.D.) anywhere in the world.



"Have a carrot, it might improve your eyesight."

Accident Treatment In Doctor's Office Covered by HBA

The Hospital Benefit Association covers treatment in a doctor's office under certain conditions.

The Association pays for accidental injuries including treatment of fractures, dislocations and wound repair in the home or the doctor's office if treated within 24 hours of the accident. It also pays for X-ray examination for fractures and dislocations in the doctor's office.

Xmas Program Salutes All Arizona Hospitals

To help tell the story of the origin and development of modern hospitals and publicize some of the many problems they face, the Hospital Benefit Association sponsored a half-hour Christmas radio program over nine stations of the Arizona Broadcasting System.

The broadcast was presented for two reasons: (1) to help better public relations for the hospitals; and (2) to show the Association's appreciation to the medical profession for its cooperation with HBA members.

Called "A Christmas Salute to Your Hospital," the program highlighted the accomplishments of Arizona hospitals, and pointed out the problems hospitals face as a result of Arizona's rapid population growth.

The entire program was produced with the complete cooperation and approval of the Arizona Hospitals Association. It was presented as a public service feature of the Hospital Benefit Association.

Arizona Pharmaceutical Page

What the Doctor Should Know About Prescription Pricing or Facts About Prescription Pricing

By C. W. Dudding, Chairman, Executive Committee, Arizona Pharmaceutical Ass'n.

Why should a physician know how the average pharmacist prices prescriptions? Generally speaking he should understand the methods commonly used by pharmacists, because it is in the interest of their patients. This is necessarily true because you are interested both from the health and the economic points-of-view. Objectively, your first consideration is the treatment of the patient. Subjectively, the second consideration is the economic ability of the patient to fulfill the objective desired. The two, of necessity, go hand-in-hand in an economy such as we have here in the United States.

Now this may not be a good situation but it does have a direct bearing upon the treatment you utilize for the patient's benefit. In this respect, we are generally agreed that a workable plan of prepaid health insurance, under a voluntary system, whereby the individual will retail his freedom of choice, would be of positive value so far as the general health of the individual is concerned.

Regarding prepaid health insurance, we as pharmacists believe that the federal government's role in the formulation of desirable systems or plans to achieve this goal should be neutral. The complete control and administration must not be delegated to the federal government! We state this emphatically because we, the same as you, will have no part in a paternalistic form of government.

The pharmacists of Arizona commend the physicians of Arizona for the militant stand they have taken in the prevention of this typically American ideal!

We have digressed somewhat from the subject but we believe that you should know what our convictions are regarding the medical schemes proposed by certain elements in Washington. Or should we say, formerly in Washington.

Now then, back to how the average pharmacist in Arizona prices prescriptions. In our everyday practice of pricing prescriptions most of us use a pricing schedule. These schedules have evolved over the past many years and have weathered the economic storms proving their reliability as to fairness to the public and to the pharmacy.

Here's how the system works; the patient brings the prescription in, hands it to the pharmacist for compounding. After filling the prescription, the pharmacist prices it according to the printed schedule price. This is the amount the consumer pays for the medication.

You have probably observed these pricing schedules in various pharmacies and have wondered how they were used. Briefly described, they are in the form of a tabular index. Across the top horizontally, the divisions are in quantities most usually prescribed by the physician, i.e., 1, 2, 3, 4, up through 16 ounces for liquids. The same applies for tablets, capsules and ointments. Down the left side, vertically, the cost prices are listed. Usually for tablets the cost per 100; for ointments the cost per ounce and liquids the cost per pint.

Now you may visualize how quickly we arrive at prescription prices. At the point where the cost line intersects with the quantity line there is a printed amount. This amount is the price value of the prescription and the one generally used in making the price determination. Other factors incident thereto may, or may not, be added. This will account for the slight fluctuation in prices among various pharmacies.

For example, let us take a prescription calling for "Tabs. Phenobarb, No. 100, grains 1½." If the cost were .50c per 100, then the price would be $1.60. If you had prescribed 50, the price would be $1.15; 24/.95; 12/.85. For example number 2, let us take a prescription calling for Elixir Nembutal. If the cost per pint were $2.90, then the selling price would be: 16 oz./$5.50; 8 oz./$3.10; 4 oz./$1.95.

For example 3, let us take the Mycin group. If the cost per 100 were $30.60, then the price to your patient would be: 100 caps./$50.95; 50 caps./$25.85; 24 caps./$12.80 and 12 caps. $6.80.

From the preceding you realize that an honest effort has been made by the schedule designers

to mathematically place the price value in a bracket where everyone gets an equal break price-wise. That is to say literally, that inexpensive prescriptions are scaled upward and that costly ones are scaled downward in order to arrive at a favorable balance on behalf of the average consumer, from an economical point of view.

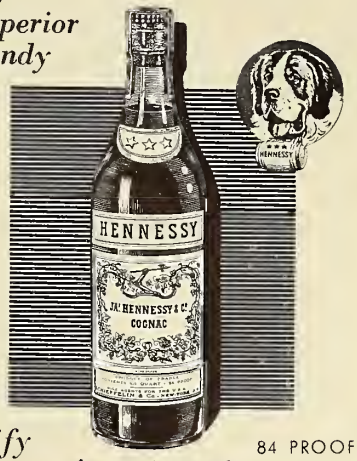
Now here's where you may be of valuable assistance to the patient in sofar as the individual's ability to pay is concerned. You usually know more concerning the patient's financial condition than we do, therefore, whenever feasible and practical, we suggest that you write prescriptions in units of 100's, pounds, pints or in the larger amounts or multiples. We know that the amount prescribed for each individual must necessarily be tailored to the individual's requirements. We also know that it may not be the prudent thing to prescribe in quantities in the upper brackets, when the patient needs only small amounts. Most of us appreciate the fact that many physicians tell their patients what a prescription will cost, especially higher priced prescriptions. Naturally, we would prefer that you state it as being around such & such an amount, i.e.: between $5.00 and $6.00. If a specific amount is stated, it places the pharmacist sometimes in an embarrassing position. Usually the patient does not quote the amount stated by the physician until after the pharmacist states his price. Now you can understand this particular situation.

This points up again the desirability of the physician knowing how prescriptions are priced; also knowing the prevailing prices for most of the commonly used medications, particularly those from $5.00 upward. This also helps us with our relations with your patients. You might call it a "conditioning process."

You may be assured that we are vitally interested in doing everything reasonably possible to maintain the cost of medication to the patient at a minimum level. This is as it should be; a joint responsibility and obligation upon medicine as well as upon pharmacy.

In conclusion, we extend an open invitation for you to come in and go over our pricing schedules. Discuss with us the points which may not be too clear at the present time relative to prescription pricing.

In very special cases
A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N. Y. 54

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.
We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

ANNIVERSARY

An anniversary of more than passing note was that of Arizona Blue Shield as it formally celebrated its fifth year of operation in the state. The event was staged December 6th in Phoenix. Well-attended, there were representatives from business and the medical and allied professions present. All told over fifty guests gathered at Green Gables for the dinner meeting.

Dr. David C. James, Blue Shield president, presided over the evening's activities. Included on the varied and interesting agenda were: Sam Barham, Blue Shield Commissioner for District IX (home base: Topeka, Kansas), who presented Dr. James with a scroll from the Blue Shield Commission, Chicago, commemorating the anniversary; a presentation of achievement awards to Drs. E. Payne Palmer, Sr. and Carlos C. Craig, past presidents of Arizona Blue Shield, and to Dr. James, the incumbent. The presentations were made by L. Donald Lau, Executive Director of both Blue Cross and Blue Shield.

Guest speaker for the occasion was Dr. L. Howard Schriver, President of the Blue Shield Commission, Chicago (his home base: Cincinnati, O.), who brought a pertinent message on the future of Blue Shield and the necessity of its close working relationship with Blue Cross.

Sidelight of Commemoration Activities: Little five year old Margaret Hruby, daughter of the Stanley C. Hrubys, Phoenix, was presented with a doll by Dr. Paul Armour in behalf of Blue Shield. The reason: Margaret was the first baby born under Blue Shield in Arizona. Dr. Armour is her doctor.

FIGURES .....

As of September 30, 1952 (first three-quarters of the year) there were 23,683,940 Blue Shield members, according to figures released by the Blue Shield Commission, Chicago. Percentage-wise this represents 15.50 of the total populations of Canada, Hawaii, Puerto Rico and the United States.

17,772 people are joining Blue Shield every working day of the year, a pretty lively statistic.

COMMISSIONER .....

L. Donald Lau, who has served two terms as General Chairman of District IX for Blue Cross and Blue Shield, will assume new duties when his term expires in April. At that time he will become Blue Shield Commissioner for the District.

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics
We Specialize In Planter Box Materials

531 W. Thomas Road Phone CR 4-0211
Phoenix, Arizona

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

ORGANIZATION

You are eligible to become a member of the Woman's Auxiliary to your County Medical Society, to your State Medical Association, and to the American Medical Association. It will be your privilege to assist your medical society in its program for the advancement of medicine and public health, to cultivate friendly relations, and to promote mutual understanding among families of physicians. You can serve as a leader of health education in your community and act as a liaision between the medical profession and the public. Become an informed auxiliary member by reading the Bulletin, Today's Health, the State Medical Journal, and newspapers and magazines Serve your community by assisting with the nurse recruitment program, civil defense work, home nursing, Red Cross, Blood Bank programs, and accepting memberships in your community health council and other community welfare groups.

Mrs. Brick P. Storts
Chairman, State Organization
Tucson, Arizona

Woman's AUXILIARY

CIVIL DEFENSE NEWS

The Health Service of the Civil Defense Agency in the State of Arizona has been organized with Dr. Joseph Greer heading the State Health and Medical Service. He has the chief responsibility for supervision, actual services, and professional and technical personnel in time of disaster. This local organization must provide both for reserves and for the automatic replacement of command in the event of top administrative officials being killed or disabled during an enemy attack. Doctor Greer also must have a training program for volunteers in all administrative phases of the Health Program. He has built his organization around the State Health organization in each individual county and each county has its head for the Civil Defense Health Service Program. In Maricopa County Dr. Ben P. Frissell and Dr. R. W. Hussong are in charge of the Program; in Pima County Dr. R. N. Howard and Dr. H. W. Thompson are in charge.

There has been established over the State a Hospital Plan that is complete and in operation, and a Doctor's Disaster Control Plan that will use all of the professional manpower available, including pharmacists, dentists, etc. Since health service training is an essential part of the overall civil defense program, facilities have been set up to include the following courses: Medical Aspects of Atomic Warfare, Defense Against Biological Warfare, Defense Against Chemical Warfare, Treatment of Burns, General Treatment of Casualties, Organization of First Aid, Rescue, Ambulance, and Emergency Hospital Service, General Administrative and Organization Problems.

Nurses Aides and Home Nurses are being trained by the Red Cross. Most of the permanent and auxiliary staffs of hospitals will require training if the hospitals are to function effectively in time of disaster. Existing hospitals will cooperate in training volunteers.

Radiological monitors have been trained from non-medical persons—science teachers wherever possible to recruit them. Plans are also in effect for training sanitation personnel to supplement the peacetime staff and to provide for such emergency services as mass feeding centers.

Training of technician aides in the identification of agents used in biological warfare involves special culture and related techniques which are not ordinarily a part of local laboratory routine. Veterinary service of the State has been solicited and they are active in participating in this work which is under the supervision of Dr. Hight.

At present there are eight complete first aid teams, organized and physically set up, ready to go into action in Maricopa County and the City of Phoenix. These mobile first aid teams include doctors, nurses, dentists, etc., and are complete, even down to litter bearers. These teams are assigned to strategic positions within the city and county where they would be able to set up and go into operation at a few minutes notice. Routes of travel have been planned so as to pick up these people at the most convenient points and alternate collecting points and routes have been established. Adequate communications by radio and messenger have been arranged with the civil defense communications center. Mutual aid area units have been established and everyone has been told to completely familiarize themselves with the plan.

Pima County is organizing along the same lines. They have detailed plans adaptable to any situation for the mobilization of vehicles, first aid personnel and first aid supplies.

The Hospital Plan which has been put into effect consists of a complete survey of each hospital—it's beds, personnel, equipment, supplies, etc., and an outline of the functions of the hospitals in the event of a disaster.

Communication must be provided between the hospitals and the local civil defense organization. The hospitals will be responsible for providing the necessary staff for the business office, the procurement section and the communications section. Emergency food service would be provided for casualties and hospital personnel; special diets, pastry, salads, and the normal tray set-up would be discontinued. Each hospital is responsible for developing a Preparedness Plan and for periodically having practice sessions for the regular hospital staff and volunteers.

Plans have been drawn up for using non-hospital buildings as improvised hospitals since existing local hospitals cannot be expected to care for all surviving casualties of a major civilian wartime disaster. Due to the severe limitations on the availability of hospital furnishings and equipment, improvised arrangements will be planned in advance and the nearby stores and homes will be canvassed to determine the availability of substitute equipment.

These plans are set up to cope with a war-caused emergency but could cope equally as well with any disaster which might happen at any time.

What the Auxiliary can do for Civil Defense:

1. *Red Cross First Aid Course*—Learn how to save lives in your own family. Take a course in first aid and home nursing. Fill in a Civil Defense record sheet in order that your chairman will know the volunteer jobs for which you are trained.

2. *A home survey of medical supplies*—Do you have an adequate first aid kit? Does your neighbor have one? Is every member of the family familiar with it's contents, the use of it's contents, and it's location?

3. *Home Warden Service*—Have you learned home fire protection methods? Have you provided for an emergency feeding program in your home?

4. *Nurse recruitment*—Members of other local organizations should try to interest their club members in a nurse's loan fund.

Mrs. Harry A. Cumming
Arizona Medical Auxiliary
Chairman, Civil Defense
Phoenix, Arizona

Grateful acknowledgement is made to Colonel Q. C. Harvey and the Arizona Civil Defense Agency for their kind assistance.

WANTED—Young Assistant
For the General Practice of Medicine and Surgery
LOUIS P. LUTFY, M.D.
301 W. McDowell Rd.
Phoenix, Arizona
AL 3-4200

BED WETTING STOPPED

In from two to six weeks with the sensational new **WET ALARM.** You can recommend **WET ALARM** with confidence. There is nothing to plug into any electrical outlet—no attachments or special wearing apparel. The buzzer sounds at the first drop of moisture. **WET ALARM** carries a money back guarantee. Recommend it to your sound sleeping enuretics where no organic disorders are present. One low rental fee regardless of time required for a cure. Investigate now.


Oxygen

DYE MEDICAL AND OXYGEN SUPPLY CO.

3332 WEST McDOWELL ROAD P. O. BOX 6276 PHOENIX, ARIZONA

SALES
WALKERS
WHEEL CHAIRS
SICKROOM SUPPLIES

"Every Need For the Sickroom"
PHONE
AP. 8-3531

RENTALS
CRUTCHES
HOSPITAL BEDS
OXYGEN THERAPY


Medical Gasses

U. C. MEDICAL LIBRARY
MAR 16 1953
San Francisco, 22

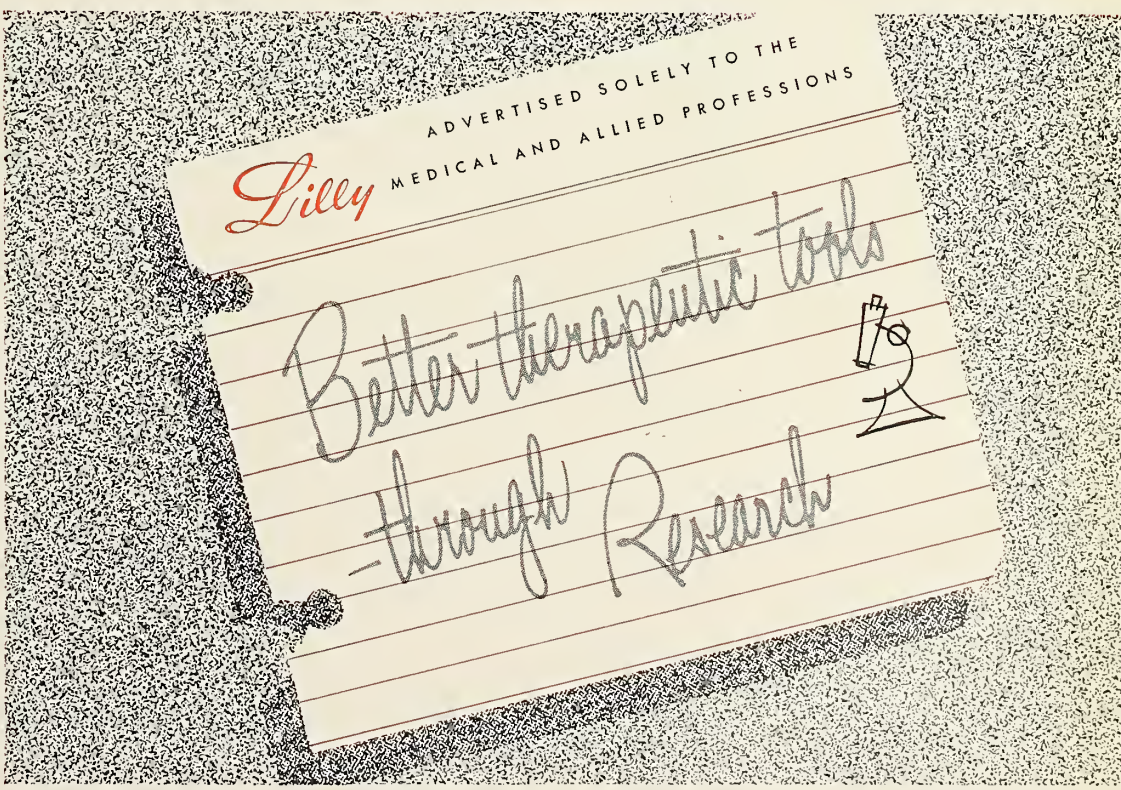


Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

ANNUAL
APRIL 26, 27, 28, 29

MEETING
TUCSON, ARIZONA



notably effective

well tolerated

broad spectrum antibiotic





highly effective in a wide range of bacterial, rickettsial, and viral pneumonias, CHLOROMYCETIN (chloramphenicol, Parke-Davis) is particularly valuable in mixed infections and where the causative agent is not easily ascertained.

unusually active against staphylococci CHLOROMYCETIN reduces the likelihood of bronchopulmonary staphylococcal superinfection, an increasingly common complication.

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 3 MARCH, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

COR PULMONALE 85
Osborne A. Brines, M.D., Detroit, Michigan

BRONCHO MONILIASIS 87
R. J. Antos, M.D., Phoenix, Arizona

PARENT-CHILD-DOCTOR RELATIONSHIPS 89
Hale F. Shirley, M.D., San Francisco, California

BASIC SCIENCE SEMINAR

PHYSIOLOGY OF THE SKIN 92
Carl H. McPheeters, M.D., Tucson, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 97

THE PRESIDENT'S PAGE

POLITICAL ACTIVITIES IN WASHINGTON 106
Thomas H. Bate, M.D., Phoenix, Arizona

EDITORIAL

CONTRACEPTIVES BY MOUTH? 107

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS. 108
Guillermo Osler, M.D.

LETTERS TO THE EDITOR 111

DEFENSE DEPARTMENT PROPOSES REGROUPINGS IN DOCTOR DRAFT 113

ODM TO HANDLE GAMMA GLOBULIN DISTRIBUTION 113

WHO FILLS THE PRESCRIPTION? 114
Arizona Pharmaceutical Association

HOUSE COMMITTEE SEEKS CLARIFICATION ON VA REORGANIZATION 115

NEWS ITEMS 119-120

WOMAN'S AUXILIARY

ANNUAL CONVENTION 116
Mrs. B. P. Storts, Chairman, Mrs. Roy Hewitt co-Chairman, Tucson, Arizona

PROGRAM 116
Mrs. Hugh Thompson, Tucson, Arizona

ARCHIVES 117
Mrs. C. Selby Mills, Phoenix, Arizona

DIRECTORY

SANATORIUM DIRECTORY XXI
DRUGGISTS DIRECTORY XXV
PHYSICIANS' DIRECTORY XXX

Published monthly by the Arizona Medical Association. Business office at 426 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA
OFFICERS AND COUNCIL

Thomas H. Bate, M.D. ..... President
15 East Monroe, Phoenix, Arizona
Edward M. Hayden, M.D. ..... President-Elect
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... Vice-President
1313 N. 2nd Street, Phoenix, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Harry E. Thompson, M.D. ..... Speaker of House
435 N. Tucson Boulevard, Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
15 East Monroe, Phoenix, Arizona
Kent Thayer. M.D. Central. District
1313. N. . 2nd. St.reet, . Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Donald E. Nelson, M.D. ..... Southeastern District
509 — 5th Avenue, Safford, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 — 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Harry T. Southworth, M.D. ..... Past President
P. O. Box 788, Prescott, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Hilary D. Ketcherside, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Otto E. Utzinger, M. D., Ray.

HISTOR & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Bert E. Lamhrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; W. R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D.,

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Guy B. Atonna, M. D., Douglas; Joseph Bank, M. D., Phoenix; David E. Engle, M. D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1952 - 1953

President ..... Mrs. W. F. Schoffman
36 North Country Club Drive, Phoenix
President Elect ..... Mrs. George S. Enfield
335 West Cambridge, Phoenix
Vice-Pres. 1st (organization) ..... Mrs. Brick Storts
El Encanto Estates, Tucson
Vice-Pres. 2nd (Program) ..... Mrs. Hugh Thompson
135 Palomar Drive, Tucson
Treasurer ..... Mrs. R. Lee Foster
2215 North 11th Avenue, Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. L. L. Tuveson
346 West LaMar Rd., Phoenix
Director 1 Yr. ..... Mrs. J. H. Allen
829 Country Club Drive, Prescott
Director 1 Yr. ..... Mrs. R. W. Rudolph
3935 E. Miner, Tucson
Director 2 Yr. ..... Mrs. T. C. Harper
175 South 3rd Street, Globe
National Representative ..... Mrs. Jesse D. Hamer
1819 North 11th Avenue, Phoenix
Bulletin ..... Mrs. Hiram Cochran
2716 East 4th St., Tucson
Civil Defense ..... Mrs. Harry Cumming
517 W. Rose Lane, Phoenix
Finance ..... Mrs. Paul S. Causey
38 West Camelhack Rd., Phoenix
Health Education ..... Mrs. Roy E. Hewitt
130 Camino Miramonte, Tucson
Historian ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Legislation ..... Mrs. George A. Williamson
537 West Rose Lane, Phoenix
Parliamentarian ..... Mrs. V. G. Presson
1317 North Stone, Tucson
Publicity ..... Mrs. John R. Green
2221 North 40th Street, Phoenix
Public Relations ..... Mrs. J. K. Bennett
2325 East Waverly, Tucson
Revisions ..... Mrs. Delbert Secrist
2527 East 3rd St., Tucson
State Nurses Loan Fund ..... Mrs. Carlos C. Craig
727 Encanto Drive SE, Phoenix
Today's Health ..... Mrs. Paul Jarrett
501 East Pasadena, Phoenix
Nominating Chairman ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix

GILA COUNTY

President ..... Mrs. I. E. Harris
Box 1296, Miami
Vice-Pres. ..... Mrs. Nelson D. Brayton
823 Merritt, Miami
Sec.-Treas. ..... Mrs. Wm. E. Bishop
605 South 3rd Street, Globe

MARICOPA COUNTY

President ..... Mrs. Archie E. Cruthirds
60 E. Country Club Dr., Phoenix
Pres.-Elect ..... Mrs. Paul Jarrett
501 E. Pasadena, Phoenix
1st Vice-Pres. ..... Mrs. Robert Cummings
5830 Arcadia Lane, Phoenix
2nd Vice-Pres. ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Rec.-Sec. ..... Mrs. A. I. Ramenofsky
916 E. Cambridge, Phoenix
Cor.-Rec. ..... Mrs. Robert Price
335 West Wilshire, Phoenix
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 17th Street, Phoenix

GRAHAM COUNTY

President ..... Mrs. Frederick W. Knight
Safford
Vice-Pres. ..... Mrs. Noel Grey Smith
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hollis H. Brainard
328 N. Country Club Rd., Tucson
Pres-Elect ..... Mrs. Hugh C. Thompson
135 Palomar Drive, Tucson
1st Vice-Pres. ..... Mrs. Darwin Neuhauer
3017 E. Loretta Drive, Tucson
2nd Vice-Pres. ..... Mrs. Jackson Pyre
4141 East Killmer, Tucson
Rec.-Sec. ..... Mrs. Phillip G. Derickson
2841 E. Exeter Dr., Tucson
Cor.-Sec. ..... Mrs. David E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th Street, Tucson

PINAL COUNTY

President ..... Mrs. J. B. Tucker
Box 1042. Casa Grande
Vice-Pres. ..... Mrs. G. H. Walker
Box 1225, Coolidge
Sec.-Treas. ..... Mrs. R. Z. Collings
Box 475, Casa Grande

YUMA COUNTY

President ..... Mrs. Charles S. Powell
698 Ninth Avenue, Yuma
Vice-Pres. ..... Mrs. John F. Stanley
201 1st Ave., Yuma
Sec.-Treas. ..... Mrs. John J. Klohy
Box 1590, Yuma

YAVAPAI COUNTY

President ..... Mrs. Joseph P. McNally
208 Grove Ave., Prescott
Vice-Pres. ..... Mrs. M. W. Phillips
829 Flora Ave., Prescott
Secretary ..... Mrs. E. C. Geever
Whipple Barracks, Whipple, Arizona
Treasurer ..... Mrs. Wm. R. Shepard
Hassayampa Country Club, Prescott

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 3 MARCH, 1953

Original ARTICLES

COR PULMONALE

Osborne A. Brines, M. D.*
Detroit, Michigan

Cor pulmonale means pulmonary heart disease and is produced by pulmonary arterial hypertension. It is a term not too well understood, often not used when indicated, sometimes not used correctly. Some textbooks of pathology do not mention it.

Cor pulmonale may be subdivided into primary and secondary. The latter is the result of pulmonary circulatory obstruction due to chronic left-sided cardiac disease. The fromer is that which is related directly to pulmonary or pulmonary arterial disease. Further classification can be based on chronology, viz, acute, subacute and chronic.

The classical example of acute cor pulmonale is that which occurs in massive pulmonary embolism. In fatal cases death is due to overwhelming right ventricular failure. The nonfatal type is frequently not recognized.

Subacute cor pulmonale is perhaps not a very well established entity, but the term aplies to that type of pulmonary arteriolar or capillary obstruction which is sometimes produced by diffuse metastatic carcinoma in which the peribronchiolar lymphatics become packed with tumor cells, compressing the adjacent blood vessels. The resulting pulmonary hypertension is of comparatively short duration. Massive lobar pneumonia, particularly with delayed resolution, may produce a similar result, the clinical course of which may be of shorter duration.

Chronic primary cor pulmonale is the cardiac disease which is the principal subject of this discussion. The pulmonary hypertension in this lesion develops gradually. As in systemic arterial hypertension, ventricular strain is followed by hypertrophy, in this case the right ventricle. From this point on in this discussion the chronic primary form of the disease only will be referred to.

The following causes of cor pulmonale are of chief importance:

1. Obstructive, vesicular or hypertrophic emphysema, those terms often being used synomously. This is by far the commonest cause of chronic cor pulmonale.
2. Silicosis or anthraco-silicosis, particularly that which is associated with diffuse fibrosis.
3. Tuberculosis or silico-tuberculosis.
4. Bronchiectasis and the usually associated chronic pneumonitis.
5. Pulmonary arteriosclerosis or arteriolosclerosis.
6. Idiopathic pulmonary fibrosis.
7. Diffuse thrombosis of pulmonary arteries.
8. Arterial shunt. It has been shown in anatomic research that there may exist a communication between the aorta and the pulmonary artery or perhaps more correctly between systemic arteries and branches of the pulmonary arteries.

Silicosis, tuberculosis, bronchiectasis and emphysema frequently coexist and a single cause of pulmonary hypertension might be difficult to arrive at from autopsy findings. Right ventricular hypertrophy without aparent cause should not be called cor pulmonale.

Ayerza's disease is a poorly defined term

*Professor of Pathology, Wayne University College of Medicine.
Read before the Annual Meeting of the Arizona Medical Association, Phoenix, Arizona, April 30, 1952.

which is better left unused. About fifty years ago Ayerza described a case of congestive heart failure characterized by marked cyanosis (*cardiaco negrico*). This incident was referred to by a colleague a few years later, and still later, in a mysterious way, syphilis was alleged to be the etiologic agent. There is still the persistent belief that Ayerza's disease is syphilitic pulmonary arteritis.

In establishing the diagnosis of cor pulmonale, the examination of the heart at autopsy is important. Measurement of the thickness of the ventricular walls is inaccurate because the presence or absence of stretching due to dilatation cannot be evaluated. During the past one hundred years attempts have been made to weigh the right and left ventricles separately. Years ago my colleaguess and I began sectioning the heart in thin transverse slices in a more careful search for small infarcts. This technique left the base of the heart intact and did not interfere with examination of the valves. Later this method was employed to weigh the ventricles separately. There is very little difficulty in deciding where to make the incision in the interventricular septum because the muscle bands of the two ventricles are somewhat distinct. The sum of the weights of the two ventricles should be between two-thirds and three-fourths of the total weight of the heart. The ratio between the weight of the left ventricle and that of the right is the ventricular ratio and averages in the normal heart between 1.7 and 1.9. Arbitrarily 1.5 and 2.5 are taken as the lower and upper limits of normal respectively.

Pulmonary tuberculosis is a common cause of chronic cor pulmonale. The incidence depends on how carefully the examination of the heart is carried out at necropsy. In Higgin's series consisting of 600 consecutive autopsies performed in a tuberculosis sanitorium there was cor pulmonale in 40 per cent, using a ventricular ratio of 1.3 as a minimum. If the usual criterion of 1.5 had been used more nearly 50 per cent would have had cor pulmonale. In 15 per cent of Higgins cases the ventricular ratio was less than 1.0. In tuberculosis various factors have been considered to be the cause of right ventricular hypertrophy, including adhesions, fibrosis and emphysema. Higgins showed that the duration of the disease was an important factor.

At Cleveland City Hospital, Scott and Bardin in nearly 800 consecutive autopsies found that 6.3 per cent of all cases of heart disease were diagnosed as chronic cor pulmonale. At Detroit Receiving Hospital between 1942 and 1945 my associates found the incidence of primary and secondary cor pulmonale to be 9.8 per cent of all autopsies. In this hospital the average patient age is high and chronic degenerative and rheumatic carddiac disease is prevalent.

While cor pulmonale is an entity well established on an anattomic and a physiologic basis, certain criteria must be recognized in establishing a clinical diagnosis. The criteria adopted by the N. Y. Heart Association are (a) Presence of pulmonary disease; (b) Evidence of cardiac insufficiency; (c) Cyanosis; (d) Evidence of enlargement of right ventricle.

The symptoms are chiefly those of right heart failure. There is passive hyperemia of the following organs: liver, spleen, kidneys and intestines. Ascites, edema and polycemia are typically present. Males are more likely to be affected and among these the Central European nationalities are prominent. These last two factors are related to occupations in which pulmonary fibrosis occurs.

Pulmonary atherosclerosis is an interesting cause of pulmonary hypertension. That which is unassociated with other pulmonary or cardiac disease is referred to as primary and is a rare lesion. Peculiarly enough the severity of the atherosclerosis is not necessarily parallel to the degree of hypertension present. One is tempted to speculate on the possibility of arterial and arteriolar thickening and degeneration being secondary to primary pulmonary hypertension similar to ordinary essential hypertension. Cardiac catheterization studies will add important knowledge to this subject and will doubtless clarify certain aspects which are somewhat vague at present.

Summary

Cor pulmonale is a cardiac disease of considerable importance, established on concise anatomic, physiologic and clinical critria. It is usually a chronic disease and is always secondary to pulmonary hypertension. The consequences are right ventricular strain, hypertrophy and failure leading to the usual sequelal consisting of engorgement of systemic veins, passive hyperemia, anasarca, anemia and compensatory polycemia.

BRONCHO MONILIASIS

Presentation Of A Case With Apparent Recovery

R. J. Antos, M. D.
Phoenix, Arizona

Since 1905, when Castellani first described the disease among the tea tasters of Ceylon, broncho-moniliasis has been reportetd from almost all the countries of the world. The reader is referred to the excellent papers of Kino(1), Warr(2), and Jaffin(3). A good summary of pulmonary mycosis is that given by Smith(4).

The question of whether broncho-moniliasis constitutes a primary disease entity cannot readily be answered. The clinical diagnosis of the condition through the mere demonstration of pathogenic monilia in the sputum seems unjustified. Monillia (or Candida) is probably more often a secondary invader, and it contributes largely to the continued and progressive activity of the primary lesion. There are several pertinent observations which favor the opinion that the fungus may act as an etiologic agent; (1) the therapeutic effect of iodides which may produce a marked symptomatic improvement (and clinical cures have been reported); (2) the systemic dissemination of pathogenic monilia as evidenced by the recovery of the organism from the urine in cases of broncho-moniliasis, and by the demonstration of the least-like bodies in the regional lymph nodes and in the spleen; (3) cases in which other definite etiologic agents are demonstrated in the pulmonary lesions at necropsy. The condition is undoubtedly frequently overlooked during routines necropsies, due chiefly to the failure to attempt to identify the organismm by culture and stains. Lesions of the human can be reproduced in susceptible laboratory animals. Allergy appears to play an important role in the pathogenesis of the condition(1).

The sequence of events leading up to the development of this condition may be described as follows: The fungus gains its entrance in the lower air passages and begins to multiply in an inflamatory exudate in the presence of bronchitis, bronchiectasis, or pneumonia. It may penetrate the wall of the bronchus, or reaching the alveoli, it invades the pneumonic area, where it prevents resolution. The fungus continues to multiply, producing a low-grade suppurative process. This may continue indefinitely, perhaps for many years, predisposing the affected individual to periodic attacks of pneumonia which sooner or later results in a chronic lesion with areas of fibrosis and suppuration. It would appear that a pre-existing, primary lesion in the lung is essential to initiate the infestation by the fungus.

Certain mycotic infections of the lungs have long been recognized as entities. Blastomycosis and actinomycosis are the common examples. Monilia, on the other hand, is comparatively less pathogenic to man and often leads a tenacious, saprophtic existence in human tissue. However, given a primary lesion in the lung with probable biochemical tissue changes affording a favorable medium for its unrestrained growth, coupled with the inherent or acquired susceptibility of the host, the fungus may become distinctly pathogenic in the lung and produce a chronic suppurative inflammation known clinically as broncho-moniliasis (or more recently called Candidaisis).

Case history. The patient was a six-year-old white girl. She had been in fairly good health until about August, 1949, when she developed a slight cough, malaise, fleeting pains,—especially abdominal pains—and recurrent fever. The mother said the fever was an afternoon fever rising as high as 103°F., usually ranging between 100° to 101°F. The fever would recur daily for about six or eight days, then the daily peak temperature would be 99° to 99½°F., for eight to ten days, after which the higher daily temperatures would be noted again. The child was taken to a doctor who said the cause was chronic appendicitis, because of the mild abdominal pains the child experienced occasionally. Her appendix was removed in November, 1949, but the bouts of fever continued.

The patient was then taken to another doctor who diagnosed virus pneumonia and the patient was given Aureomycin, which resulted in slight and temporary improvement. Her peak temperatures were not so high as previously, but this betterment lasted only two weeks. At this time, she was found to have a negative tuberculin test

Read at the Staff Meeting of Good Samaritan Hospital, Phoenix, Arizona, Sept. 25, 1950.

The X-ray studies were done by Dr. F. H. Bregman of the department of Radiology at the Good Samaritan Hospital, Phoenix, Arizona. The identification of the organisms was done by W. E. Lox, Ph.D. of Good Samaritan Hospital, Department of Laboratories.

and a positive intradermal coccidioidin test; the mother was told the childd was probably having Valley Fever (Coccidioidomycosis).

The fever persisted and the patient began to develop headaches which recurred regularly at about eight to ten day intervals, often lasting all day.

I saw this patient for the first time on March 20, 1950, seven months after the onset of the illness. She was fairly well developedd, slightly underweight, and a very pale child. Physical examination was entirely negative except for a marked pallor and a mouth temperature of 99.6°F. An intradermal coccidioidin test, 1:1000 dilution, was positive. The child was hospitalized.

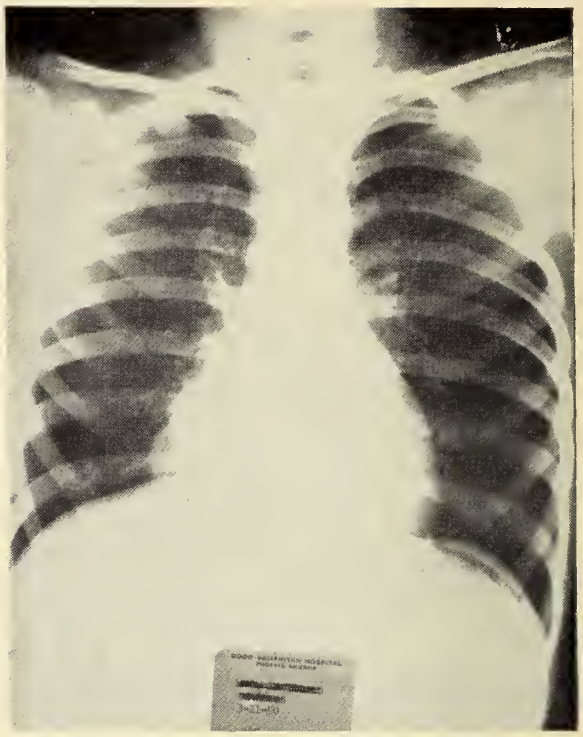
On March 21, 1950 (a chest X-ray showed a patchy pneumonitis in the medial right base. The blood sedimentation rate was 18 mm. per hour (Cutler). The urine was normal. The blood agglutination reactions for typhoid, brucella, Ox-19, were normal. The erythrocyte count was 4.42 million per cubic millimeter, with a hemoglobin of 13 grams per 100 c.c. The leucocyte count was 10,600 per cubic millimeter with a normal differential count. The stool was normal. Malaria was not demonstrated and a blood culture was negative. On March 23, 1950, the opsonic index was normal and a recheck of the agglutination reaction for Brucella was normal. An electrocardiogram was normal on March 24, 1950.

On March 25, 11950, the sputum and the gastric washings contained monilia albicans (the latter was later shown to be monilia parakrusei).

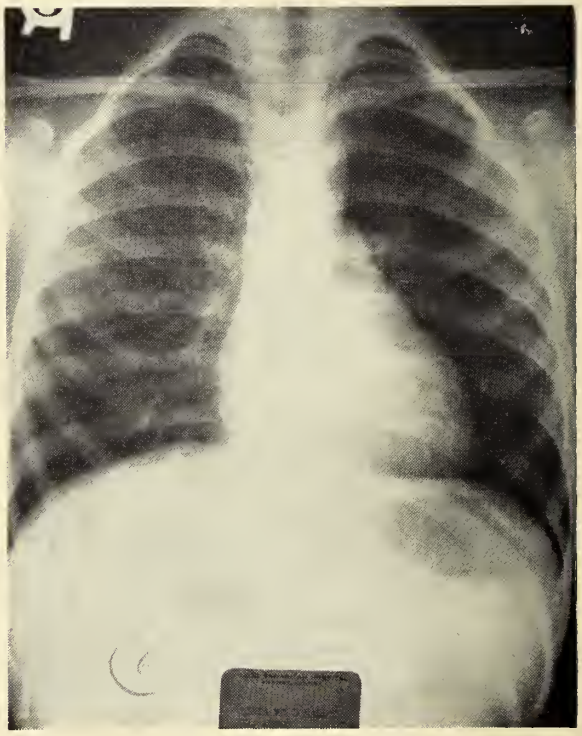
Beginning on March 27, 1950, a saturated solution potassium iodide was given in gradually increasing doses so that 30 to 45 drops daily, were given after five days.

On March 31, 1950, a chest X-ray (after four days of iodides) showed the pneumonitis to be clearing. On April 2, 1950, a sub-culture of sputum revcaled pure culture of monilia. A chest X-ray on April 6, 11950, showed that the pneumonitis had cleared, leaving a fine granularity along the truncal shadows. A skin tesst to monilia vaccine was done. Forty-eight hours later, the patient showed an erythema of one cm. in diametter, with slight induration, approximately four mm. in diametter. The sputum culture of April 6th, was reported to contain Candida albicans (later found to be Candida parakrusei).

The patient was dismissed from the hospital



Chest X-ray, March 21, 1950



Chest X-ray, April 6, 1950

on March 31, 1950 and was given 30 drops of saturated solution of potassium iodide. A follow-up X-ray on April 24, 1950, showwed shaggy coarsening of the medial truncal shadows ex-

tending to the right base. This was more pronounced than on the previous examination of April 6. This was interpreted as being due to the fungus infection, and on May 29, 1950, X-ray examination showwed no gross changes except slight fibrosis. The patient has remained well for twenty months since the initial therapy.

Summary

A case of broncho-moniliasis due to candida parakrusei is presented. The patient had a dramatic recovery during iodided therapy. The child has been observed for 25 months, and there has not been any recurrence of the infection.

REFERENCES:

1. Kino I: Monilia Infection of the Lungs. Am. J. Clin. Path., 7:367, 1937.
2. Warr, O. C.: Broncho-Moniliasis.
3. Jaffin, A. E.: Broncho-pulmonary Moniliasis. J. Mt. Sinai Hosp. N. Y., 10: 586, 1944.
4. Smith, D. T.: The Diagnosis and Treatment of Pulmonary Mycoses, Ariz. Med., 7: 36, 1950.

20 W. Riverside St.

PARENT-CHILD-DOCTOR RELATIONSHIPS

Hale F. Shirley, M. D.
San Francisco, California

The physician who concerns himself with the emotional and behavoir problems of children will find that his therapeutic effectiveness largely depends upon his ability to help the parents. In child guidance work, it is true, children are often treated directly through play and interview therapy — procedures which require special knowledge and training, but even child guidance clinics, as a rule, will not accept a child for treatment unless the parents also are willing to take part in the process. As far as the pediatrician and general practitioner are concerned, certainly, mental health work with children consists largely of parental guidance.

The most effective thing the physician can do, in the long run, is to help parents create and maintain in their homes an emotional atmosphere which is conductive to the normal emotional development of the children. Most parents want to do this. It is rare to find parents who do not want to do the very best they can for their children; and when parents do find themselves locked in conflict with their offspring, so often it is because they do not understand the needs of a child and the meaning of normal childhood behavoir. Persistent parent-child conflict may also result, however, when the parents' own emotional tensions are so great or their feelings toward their child and his behavoir are so negative that they can neither make use of good advise nor conduct themselves sufficiently in accordance with whatever understanding and good intentions they may have.

Work with the parent, therefore, consists of two aspects: one educative, and the other therapeutic in the sense that an effort is made to relieve the parents of handicapping feelings. First, of course, all parents need to have some understanding of the normal emotional and social needs of the child. Secondly, the physician can often do a great deal to make the parents emotionally more comfortable in their parental roles. Reasonably well adjusted parents who have achieved a large measure of emotional maturity may benefit from a physician's instruction, suggestions, or advice. Parents who, on the contrary, are dominated by strong feelings of inadequacy, anxiety, or resentment may need considerable help with their own feelings before they can make use of even the best of knowledge and guidance.

The basic emotional and social needs of the child are now quite well known. In spite of the fact that some people seem to be tired of hearing about the child's need for love and security, anyone who has entered into a study of the dynamics of personality development recognizes the fundamental importance of these two components of the child's emotional environment in his acquisition of a socially desirable character. Next to the basic physical necessities of life, there is no more fundamental human need than that of love. Love is the main emotional constructive force in social living, and the child who has not experienced it in abundance in infancy and childhood is likely to become more or less handicapped emotionally in the development of satisfying as well as socially acceptable human relationships.

One can, of course, become engaged in an argument as to just what is meant by the term, parental love. Mother love does not, as has been well said, mean "smother love." Nor is it synonymous with overindulgence or overprotectiveness. Neither does it mean that a parent cannot

Read at the 61st Annual Meeting of the Arizona Medical Association, Phoenix, Arizona, April 30, 1952.

become exasperated with a child's behavoir at times or even wish to redden certain little bottoms. But love does mean that there is a warm, permissive mothering in infancy, and that throughout childhood, an acceptance of the child in the family group, an approval of him as a person (though not necessarily of all his behavoir), and a genuine interest in his welfare, happiness, and personality development.

Love also means that there is an acceptance of the child's own individuality—his sex, his age and stage of development, his appearance, temperament, and capacities. Not love but unfulfilled parental wishes drive parents to attempt to force children to be or to become something for which they have not the ability. The loving parent enjoys the child for what he is as well as for what he may become.

The child who experiences parental love of such a nature feels secure. He is not afraid to grow up. He has motive for socially desirable behavoir. He learns the meaning of love and eventually becomes able to give it as well as to receive it, a capacity which makes later home and social life possible.

As the child emerges from early infancy, other characteristics of the parent-child relationship contribute to his sense of security: the stability, dependability, and consistency of the parents; their protectiveness in time of crisis; his developing faith in the truthfulness of the information he receives from them; and his confidence that they will not demand more of him than he is able to deliver. The question sometimes arises as to whether an environment can provide too much security for the child's welfare. It is true that anxiety normally plays a part in the inner forces which drive the child to grow up and to conform to social demands. The home, however, should provide a great deal of security, particularly during early childhood, for too much anxiety in a child—anxiety which accumulates to the point that it becomes a persistently dominating drive—interferes with emotional growth and results in all kinds of ineffective, neurotic, and asocial behavoir.

But not only does the child need the affection, protection, and understanding of his parents and teachers, he needs also, step by step, to become socialized, for he is going to have to live in a world in which there are authority, competition, and an environmental demand that he become socally and economically adequate. The attitude which the individual displays toward authority in later childhood, adolescence, and even adulthood will greatly depend upon how authority is brought to him by his parents in later infancy and early childhood—whether, for instance, the demands made upon him are in keeping with his intellectual and emotional readiness, whether they are based upon an understanding of his emotional needs, and whether they are reasonable, firm, and consistent.

Parents, therefore, are likely to need considerable help from their physicians to find a suitable balance between the child's need for both permissiveness and limitation, independence and authority. Every child needs increasing independence, with leeway to experiment, to do and plan for the self, and to learn to make decisions. Yet every child also needs the limitation of his parents knowledge, judgment, and foresight. He needs behavoral limitations for his own protection and for the interests of the rights of others if not, indeed, for a tolerableness in home living. Complete permissiveness, after infancy, may lead to unacceptable behavoir, anxiety, and an eventual lack of respect for authority and of inner controls on the part of the child, and consequently in anxiety and frustration on the part of the parents. Yet complete parental domination of the child, even though it may temporarily increase the parents' feelings of security, is not compatible with the child's future mental health.

The questions which are forever before parents, therefore, and in regard to which they often seek the help of their physician since there are no generally accepted or infallible blue prints to go by, are: "What should I demand of my child? What of his behavoir can I best overlook? What of his socially undesirable behavoir will be outgrow? Where shall I draw the line? How can I hold it, once it is drawn?" These questions are all the more difficult to answer because the needed balance between permissivenss and limitation is constantly changing with the age, experience, and emotional development of the child as well as with the situation in which he finds himself. Because the physician is outside of the emotional entanglement of the parent-child conflict and is therefore better able to view the problem with perspective and objectivity, he may be able to help the parents to find a common sense and constructive balance between

these two needs of the child for independenc and for conformity to social demands.

The importance of keeping the demands made upon the child within his capacity, however, has a relevance in another aspect of the child's emotional development. If the child is to learn to attempt to solve his own problems as they arise, if he is to attempt to meet current competition to the best of his ability, and if he is to develop his inherited potentialities to their maximum, he will need to acquire feelings of self-respect and self-confidence, feelings which come from the thrill of achievement and from the approval which he is able to win from his elders and peers through accomplishment. Constant failure only begets further failure because it does not build up the positive feelings about the self which are necessary for success. Consequently, parents and teachers should not only by interest and example seek to stimulate the child's best effort, but also keep their expectations and demands of the child within his area of physical, intellectual, and emotional readiness, and finally, also, within his potential capacities.

More important to the personality development of the child than the specific decisions and techniques of management which the parents adopt, however, is the emotional adjustment and maturity of the parents themselves. The child learns to behave and think and feel like the adults with whom he lives, particularly those whom he loves and admires. What the parents are, therefore, is more important, from the standpooint of the child's future, than what they say. How the parents feel is more important than their professed beliefs. This does not mean, I hasten to add, that parents must be perfect, or that they cannot have thoughts, feelings, and problems of human beings and still be good parents. In fact, it would probably be a bad thing for a child to be brought up in a home in which the parents were perfect—in which the parents always had the answers and never lost their emotional poise—for such a home would not train the child to live in a world which is far from perfect and is full of very "human" human beings. Nevertheless, unless parents are reasonably happy in their parental roles, unless they are relatively effective in dealing with their personal problems, and unless they have reached a stage of considerable emotional maturity, their children are likely to be more or less handicapped in their own efforts to grow up and to find a satisfactory social adjustment.

Although the general practitioner and pediatrician cannot be expected to treat effectively the more profound of the emotional and personality disorders which they occasionally encounter in a parent, they can greatly relieve the rank and file of the parents of the unnecessary anxieties, needless feelings of frustration, and feelings of inadequacy and guilt which so many parents nowadays experience when they are confronted with the usual problems of the child's growing up and his clumsy first attempts to adjust to family and social routines. The relieving of the parent of emotional tensions and the making of the role of the parent more comfortable is by no means superficial treatment, for an anxious parent is most likely to have an anxious child, and a frustrated, resentful, punitive parent is most likely to have a frustrated, resentful, and punitive child.

The physician helps parents with their emotional discomforts in several ways. For one thing, his authoritative information helps them to come to their conclusions and make their decisions with more feeling of security. For another, his optimism, hope, and courage may be catching. Though denying or minimizing a problem which really exists is not reassuring, the fact that the physician is interested in the parents' problems, wants to understand them, and is willing to help with them is often highly reassuring.

Sometimes the most helpful thing the physician can do is simply to listen to the parents' problems. He encourages them to talk. Instead of firing questions and demanding answers, he allows them to tell him what they think is important. The sharing of problems and the relief of emotional tensions through verbalization may in themselves be greatly therapeutic. There is probably no one, not even among doctors, who does not need, at times, someone in whom to confide—someone through whom one feels free to get heavily emotionally laden problems off the chest.

So the physician listens, but he also listens uncritically. Blaming and scolding have no place in a therapeutic interview. The physician cultivates the idea that he and the parent are exploring and working together. He, because of his training and experience has something to contribute to their mutual effort, but so, because of her position, does the mother. The mother, because

of her position has the observations and facts which the physician needs in their mutual effort to understand the problem. In fact, the physician is quite helpless without the cooperattion of the parents.

Thus the parents' confidence in the physician is built up. When they learn by experience that he is not interested in who is to blame for the child's behavior problems, but is rather only interested in understanding the situation and in determining how best he can be of help, they are likely to open up and tell him what their problems really are and how they feel about them. By letting them know that he appreciates their good qualities and that he realizes their motives are normal and human, by emphasizing that all parents have problems in maintaining homes and in raising children, and by insisting that there is no more disgrace in seeking help with personal problems than there is in seeking medical treatment of physical illnesses, the physician builds up the positive feelings of the parents, makes their parental roles more comfortable, and ensures the parents' best cooperation in working through the problems to a satisfactory solution.

When such a physician–parent relationship has been established, there can be a give and take of information and experience. The parent as well as the physician begins to get a better understanding of the difficulties. The physician is now in the position to make constructive suggestions, and the parent is able to see the why and wherefore of them. The parents, however, must make the decisions, for these must be based upon what the parents are willing and able to do.

The objections most often raised to dealing with parental problems in this way are that it is time consuming and the busy physician does not have the time to sit down and talk with parents. It is true that the solution of emotional problems often takes considerable time. It is true, too, that the physician cannot devote a great deal of his time to this aspect of his practice unless he is paid adequately for such time. When parents discover, however, that such interviews are helpful, and when they begin to realize that effective interviewing requires knowledge and training no less than the various medical and surgical procedures, the time will doubtless come when they will demand more and more of such help from their physicians and will also be willing to pay for it.

BASIC *Science* SEMINAR

PHYSIOLOGY OF THE SKIN

Carl H. McPheeters, M. D.
Resident in Medicine, Pima County General Hospital, Tucson, Arizona

OUTLINE OF CONTENTS

Introduction: The skin as a limiting envelope, or cover of the body.

A. *Functions of the skin.* (Not discussing anatomy of skin only as necessary.)

(a) *Sensory Functions*–as receiver of external stimuli, heat, cold, pressure, pain (sharp or dull sensations). Pain can be divided into many subheadings:

1. Pressure plus motion detects characters of surfaces encountered as smooth, rough, dry, wet and slippery.

2. Pressure with repeated experiencess enables a person to detect size, shape and identities of familiar small objects often handled. This is often done independently of sense of sight by everyone feeling about in the dark for some small object, as a door knob, or a light switch. Best example: the blind person's use of his Braille raised letters in reading by touch alone.

3. Experience in size of deep pressure sense enables persons to know how much effort to exert in handling and lifting familiar objects; enables him to stand, walk, climb or descend stairs, ladders, or hillsides–assisted, of course, by his organs of equilibrium associated with the inner ear.

(b) As the chief thermal regulator of the body in his constantly changing environment.

1. Exclusion of cold, the skin is an excellent insulating cover.

2. Cooling mechanism for removal of excessive internal bodily heat.

3. Cooling mechanism in presence of excessive outside heat (climate).
4. Elimination of certain bodily wastes in sweat and oil excreted.
5. As a breathing surface—(roughly comparable to leaves on a tree).
6. As an absorbing surface through venous capillary and lymphatic capillaries.
7. As a factory for photosynthesis of vitamins. (Valuable in children especially).
8. As a cosmetic surface, or beautifying envelope in both sexes.

(c) Skin as the matrix for its several appendagess—hair, finger and toe nails and teeth. Calluses are protective modifications due to pressure and friction.

(d) Skin as surface reservoir of vast lymphatic capillary system, all functions of which are as yet poorly understood.

The continuous, limiting cover, or envelope of the human body is its integument or skin. Its function as a covering for the soft tissues within, is, of course, the first and obvious function of the skin. The intact skin also excludes contamination of the soft, underlying tissues by the soil of surroundings, most important of which are pathogenic bacteria capable of causing infection. Cutting or traumatic breaking of the skin quickly demonstrates the great importance of the skin's defense against pathogenic bacteria because such cuts and wounds commonly become infected unless quickly treated to prevent such infection.

A minor function of the skin among all people, ancient and modern, is its use as a cosmetic surface. From barbaric peoples who disfigured the skin of the face and body with various tattoo marks and scarifications leaving keloid scars, down to modern European and American people, who employ multiple cosmetic applications to soften, beautify and perfume the skin of face and body, this cosmetic or beautifying function of the human skin has been demonstrated.

Another of the minor functionss of the skin is its service as matrix for appendages—the hair, the nails of fingers and toes, and the teeth, if note is made that they originate as thickenings in the early embryonic mucous membrance of the maxillae and mandibles, which is continuous with the outer skin, which later developes. Hair is an important appendage produced by the scalp, the skin of axillae, pubic region, and upon the chest, back and legs in varying amounts and distribution according to age and sex. The finger nails, and to a much less degree the toenails, are important skin appendages useful as aids in prehension and in holding objects grasped. Among primitives finger nails are used in fighting also.

Since the very important sebaceous and sudoriferous glands in, and just under the skin, are also classed as appendages of the skin, their functions will be considered more in detail further on.

One major function of the skin is as receiver of outside sensory stimuli. These outside stimuli may be classed as sensations of heat, cold, pain and pressure. Painful sensations may be divided into those perceived as sharp, or dull and heavy. There is aparently a different sensation produced by the cut of a knife, and the blow of a hammer upon the same finger, or thumb, as the case may be.

Pressure sense perceived by nerve endings in the skin of palmar surfaces of fingers and hands (plus some voluntary motion) enables us to detect characteristics of surfaces encountered, such as smooth, rough, dry, wet, and slippery. This is true also in the plantar surfaces of feet and toes, but is less well developed there.

Pressure sense, aided by repeated experiences, also enables the person to detect size, shape, and determine probable identify of familiar small objects often handled, as pen, pencil, spoon, knife, fork, etc. This is often done entirely independently of the sense of sight by everyone feeling about in the dark for some small object, such as light switch, door knob, or small coins in a pocket, or in a purse. The best example is the blind person's use of his Braille raised type in reading.

Pressure sense in the skin, aided by deep pressure corpuscles in tendons and synovial membranes of large joints, enables the person to know how much effort to exert in lifting and handling familiar objects; enables him to balance his body in rising from bed or chair; enables him to stand, walk, climb or descend ladders, stairs and hillsides—all assisted by his organs of equilibrium associated with the inner ear.

The sensory or afferent functions of the skin are possible because of an elaborate system of afferent nerve endings in the skin of hands, feet, lips, breasts, genitalia, and less numerous in the skin of the body as a whole. Afferent nerves divide, and upon reaching the skin lose their medullry sheaths and their neurolemma and the naked axis cylinder fibers fan out in the corium,

or end in coils in certain highly specialized end organs—as those of Krause, found in the conjunctiva, in the transitional skin of the lips, in the highly modified memberane of the tongue, in the penis and clitoris, from which fact they are also called genital corpuscles; as the tactile corpuscles, or Pacinian corpuscles, numerous in the palms, the soles, in the genitalia of both sexes, and in synovial membranes and tendons about joints; as the orpuscles of Golgi and Mazzoni, occuring in the palmar surface of finger tips; as the tactile corpuscles of Wagner and Meissner which also occur in the fingers, palms, soles, but are more widely distributed in the skin of the forearms, the skin of the lips, the mucous memberane of tip of the tongue, the palpebral conjunctiva and the papillae of nipples.

According to some experimenting observers Krause's end bulbs, or skin corpuscles have been identified as receptors for sensation of cold, while Ruffini's corpuscles have been considered receptors for sensations of heat. The spots upon the skin where cold is well perceived number only about 30,000. Stimulation of receptors for cold provokes a number of reflexes; the erection of hairs due to sympathetic nerve fiber stimula tion of the arrectores pilorum involuntary muscle fibres pulling upon the bulb of each hair shaft; constriction of the arterial capillaries by vasoconstrictor sympathetic nerve stimuli; the erection of "goose pimples"; and shivering, which is the voluntary muscle response to sympathetic nerve stimulation. The reverse process is noted when receptors for heat are stimulated. The skin becomes engorged with blood because of vasodilitation of arterial capillaries due to vasodilatory sympathetic nerve stimuli; and the consequent greatly increased excretory activity of sudoriferous glands in the area.

The receptors for sensations of pressure and pain may be the fine, unmyelinated fibers which occur beside the ordinary myelinated fibers in both the Krause's and Meissner's end bulbs, or corpuscles, since pain alone, and no other sensation, can be evoked in areas of skin having only the free, unmyelinated fibers without other end organs. These nerve nets of unmyelinated nerve fibers occur at two levels in the skin, the deep layrs of epidermis and around blood capillaries in the subepidermal layers.

We must now consider the other major function of the skin, that of chief thermal regulator of the body in environment of fluctuating temperatures. First to mention is the exclusion of cold. As briefly mentioned above in connection with afferent cold perception, in a cold atmosphere the vasoconstrictor sympathetic nerves actuate the constriction of skin arterioless and capillaries, thereby diminishing the amount of blood exposed to the cooling atmosphere; the involuntary muscle bundles in the skin are contracted and the skin as a whole becomes relatively bloodless and contracted tightly upon the underlying circulatory vessels. This effect of cold upon the skin serves the double function of excluding outside cold and also of preventing loss of body heat by radiation from the skin capillary bed. Almost all excretion of sweat is halted and the skin presents a dry surface to a cold atmosphere.

The next function of the skin to be considered is the removal of excess bodily heat generated by muscular exertion, by the increased metabolic rate, and when fever occurs as in illness. Here the vasodilator sympathetic nerves actuate vasodilitation of the arterial skin capillaries and a relatively large amount of blood is present in the peripheral circulation where loss of heat occurs by radiation, convection, and in a small way by conduction to clothing and furniture. This process is also greatly hastened and augmented by the excretion of sweat and its evaporation to be mentioned later in more detail.

Next to be mentioned is the function of the skin in excluding and minimizing the effects of external heat in the environment. Everyone is familiar with the fact of profuse perspiration in hot weather and knows that this is aparently increased by a humid atmosphere. Thereby the skin through its vasodilator sympathetic nervous suply causes hyperemia of the skin and greatly increases excretory function of its sudoriferous glands, with resulting greatly increased evaporation of perspiration on the skin, and absorption by the clothing. The aparent increase of perspiration in a humid atmosphere is because of reduced evaporation rate in already wet air. Convection and increased evaporation are both somewhat increased by wind, either natural, or artificial, such as an electric fan.

Accurately controlled experiments by E. F. Adolph and associates, some ten in number, of the Department of Physiology, University of Rochester, and presented in their book "Physiology of Man in the Desert," Interscience Pub-

lishers, New York, 1947, gives us many interesting data. For example they determined that one liter of sweat absorbs 580 calories of heat on evaporation at the skin surface. Water evaporates on the skin in direct proportion to the difference in temperature between the body within and its surrounding atmosphere—and inversely in proportion to the humidity of the surrounding air. At atmospheric temperature of 18-30° C (64° to 86°F.) the body loses 22-27 per cent of its heat loss by evaporation of sweat. Of this evaporation a small amount only is so-called "insensible perspiration" evaporating as soon as excreted, the larger amount is visible sweating evaporated less rapidly. These authors tell us an adult man of average size and normal basal metabolic rate will lose 30 grams per hour of "insensible perspiration" at air temperature of 30°C (86°F) and at 35•C (95•F) nearly all of heat loss by the body is due to evaporation of sweat. The authors have measured amounts of sweat evaporated by manual laborers working in hot sun from 5 to 8 hours. Some lost 8 liters of sweat in 5 hours, and one lost a total of 11 liters in 8 hours of work. In another test one laborer worked for 14 days under such conditions losing a total of 79 liters, in weight greater than his own body weight.

Sudoriferous, or sweet glands, occur over the entire body, excepting certain very limited areas, and are most numerous in the palms, the soles, the face, neck, under arms, in groins, and on inner surfaces of thighs and arms. According to Kuno, in his monograph, "Physiology of Human Perspiration", J. & A. Churchill, London—1935, there are two distinct types of sweet glands.

The eccrine glands, which excrete a very thin, watery sweat. These have general bodily distribution and number between 2 and 3 million. Stretched end to end this author states they would extend 2½ miles, and in bulk and weight equal about half of an ordinary kidney. These are most numerous in palms, soles, in the neck and upon the trunk. These eccrine glands produce the bulk of our perspiration.

The apocrine glands, which are larger than the eccrine type above mentioned, and which occur almost exclusively in the axillae, about the nipples in both sexes, among the hair upon mons veneris covering the symphysis pubic, and in the skin of the labiae in women and the skin about the scrotum in men. The excretion of these apocrine glands is of heavier character than that of the eccrine glands, also has a rather characteristic odor.

The chemical composition of sweat need not receive detailed attention, except to say that is contains traces of all basic chemicals found in blood plasma, the most significant one being the 0.1 to 0.2% sodium chloride by volume. Thus during profuse sweating the body of a laborer loses 5 to 20 grams (often more) of salt in the 8 hours working day in the sun, depending upon the atmospheric temperature and upon his efficiency in sweating. This sodium chloride loss must be quickly replaced by the ingestion of a nearly corresponding amount of sodium chloride to prevent heat exhaustion, fatigue and weakness. Hence has risen the well known practice of swallowing salt tablets with the large amounts of drinking water such laborers must drink while working. For an exhaustive treatment of this entire subject the reader is again referred to the splendid study entitled, "Physiology of Man in the Desert" by E. F. Adolph and associates, already mentioned.

An additional function of the skin of great importance, to which scant attention is given, is carried on by the sebaceous glands situated in almost all parts of the skin, but more abundant in the scalp and face and numerous about all bady openings, such as external ear, nose, mouth, vagina and anus. As is well known, these sebaceous glands excrete the sebum cutaneum, or oil of the skin, which emerges from ducts associated. with hair shaft canals, and serves the highly essential purpose of keeping hair in healthy, flexible condition, preventing drying and breaking of hair and skin surfaces due to weathering of sun and wind. The modified, specialized sebaceous glands of the external auditory canal elaborate an acrid, sticky wax which apparently serves to repell insects from the auditory canal by its characteristic odor, and to snare such small invaders as may enter by accident. The sebaceous glands about the other body openings already mentioned offer protective secretion to the tender areas where skin and transitional mucous membranes join. Those sebaceous glands on face, nose and both upper and lower lips have larger ducts and openings upon the surface, which may become clogged with sticky secretion and dirt—the annoying "black-heads". The sebaceous glands of the margins of the eye-

lids, the so-called tarsal palpebral glands, serve to lubricate the eyelashes and when they are infected cause the "sty", or tiny abscess about the shaft of the eyelash.

Much has been written concerning the elimination of certain bodily wastes by the skin. Mention has already been made of the minerals contained in sweat, chief of which, except in minute traces, was sodium chloride. I have not been able to locate any analysis of the sebum cutaneum, or oil of the skin, and I assume (although it is not scientific to do so) that this oil of the skin also contains some mineral matter, since it is elaborated by glands which are fed by the same blood plasma as the sudoriferous, or sweat glands. Some work has been done which shows carbon dioxide elimination, the so-called "breathing action" of the skin. This elimination varies greatly according to the season of the year, the amount of exercise, (metabolism and catabolism) the amount of clothing worn, the habits of the individual in regard to bathing (keeping the skin surface clean, and its glandular ducts open) also with small variations for age and sex. There would appear to be some need for further study of the skin as one of the four major avenues for elimination (lungs, bowels, and kidneys being the other three.)

Brief mention must be made of the function of the skin best described as its absorptive function. This ability of the healthy skin to absorb soluble and very finely divided solids is made possible by the elaborate network of fine lymphatic capillaries which are situated in both the deep layer of the epidermis and in the deep cells of the corium with intercommunicating anastamoses. Some common substances are absorbed which prove to be injurious, such as turpentine and lead oxide used in paints and varnishes, to mention two examples. In the old fashioned treatments for syphilis (before Erhlich and his 606) massive inunctious of unguentum hydrargyri (50% metallic mercury) were rubbed into hair-free sides of the abdomen as antisyphilitic treatment, sufficient metallic mercury being absorbed in a few weeks to cause salivation and gingivitis; the patient then was considered as having absorbed all the mercury he could take, and was allowed to discontinue his "rubs" with mercuric ointment. Other medications have been given via the absorption route through the intact skin into the lymphatic system, but this method is seldom used now.

Not until the discovery of vitamins and their classification and evaluation as food adjuncts, and as aids in certain deficiency diseases, was it known that the skin is a laboratory for the photosynthesis of Vitamin D, when the skin is exposed to sunlight. Since the advent of clothing and elaborate dwellings mankind has interferred considerably with nature's program in this respect. However, the value of sunshine upon the human skin is more appreciated and more generally made use of, especially for growing children, during the past 50 years. It is possible that the skin may also derive additional and yet unknown benefits from sunlight, ocean bathing, and simple air-baths possible with scanty clothing in good weather. The excellent health of the American Indians as first encountered by the early colonial and frontier settlers in the Americas suggests that no doubt their uodtoor life, wearing the least clothing (except in bitterly cold weather), was due in part to the free exposure of their skin to fresh air and sunshine.

SUMMARY

In this brief paper it has been my purpose to remind the reader of what we all have known concerning the physiology of the skin and its functions. As has been shown the skin's chief functions are as a covering for the underlying soft parts; as a defending, protecting structure against bacterial invasion into the soft parts and the blood and lymphatic streams; as the front office for reception of all external stimuli of heat, cold, pain and pressure, with various types of the pressure sense further elaborated; as the chief thermal regulator of th body both in releasing unwantd internal body heat, and in modifying excessive environmental heat by the cooling evaporation of sweat upon its surface; as one of the routes by which the body eliminates certain body wastes and gases, notably carbon dioxide; as an air absorbing surface through its abundant lymphatic capillaries; as a source of some Vitamin D by direct action of sunlight upon the skin; as the matrix for its various useful appendages, the hair, nails, teeth (old classification), the sudoriferous and sebaceous glands; and lastly (but far from least in the united opinion of cosmetologists and cosmetics manufacturers) as a cosmetic surface for beautification, and adornment of man.

BIBLIOGRAPHY

1. Anatomy of the Human Body—Henry Gray and Chas. Mayo Goss, M.D. Lea and Febiger, Philadelphia—1950.

2. Human Physiology—Bernardo A. Houssay, M. D. and Associates; McGraw-Hill Book Co., New York, 1952.
3. Physiology of Man in the Desert—E. F. Adolph and Associates; Interscience Publishers, Inc., New York, 1947.
4. Fever—and the Regulation of Body Temperature—Eugene F. DuBois, M. D. Chas. C. Thomas, Publisher; Springfield, Illinois, 1948.
5. The Mechanism of Heat Loss and Temperature Regulation—Eugene F. DuBois, M. D. Stanford University Press, Stanford University, Calif., 1937.
6. Physiology of Heat Regulation and the Science of Clothing—L. H. Newburgh, M. D. W. B. Saunders Company, Philadelphia, 1949.
7. Physiology of Human Perspiration—H. Kuno; J. & A. Churchill, London, 1935.
NOTE: The last three (5, 6, & 7) referred to by the authors in 1, 2, 3 & 4, but their books and monographs now out of print and unobtainable.

PHOENIX Clinical CLUB

CLINIC CLUB CASE NO. 21

March 3, 1952

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-five-year-old businessman entered the hospital because of abdominal pain and vomiting.

One night six weeks before admission the patient awoke feeling nauseated, and vomited several times. There was no pain. Business and family worries had been plaguing him, and for several months he had felt tense and nervous. After this episode he remained in bed for four days, and then returned to work. Late at night following days on which financial problems had been particularly trying, spells of painless vomiting recurred. Two weeks before admission he left work. The nocturnal vomiting became more frequent and began to be accompanied by severe cramps starting in the back and radiating around to the midline in a viselike manner. He was given pills and put on a bland diet without relief. Two days before admission the frequency of vomiting increased to every two or three hours; no food or fluid was retained. The vomitus consisted of food, fluid and mucus without blood. The bowels had been moving only with laxatives or with enemas. The stool color was normal. During this illness there was a 25-pound weight loss.

During examination the patient was tense and uncomfortable, constantly shifting position in an effort to relax. When the activity reached a peak, he vomited. The speech was rambling, and he had difficulty recalling dates and time. The heart was normal. There was dullness over the left lower lobe posteriorly and in the left axilla, breath sounds and tactile fremitus being reduced in the same areas. The abdomen showed tenderness and spasm throughout the epigastrium. Peristalsis was active. There were no masses.

The temperature was 98.6°F., the pulse 88, and the respirations 20. The blood pressure was 135 systolic, 90 diastolic.

Examination of the blood revealed a hemoglobin of 14.6 gm. per 100 cc. and a white-cell count of 9600. The urine gave a + test for albumin, and the sediment contained rare casts. The icteric index was 13.

In the hospital the patient was tense and frequently nauseated but appeared to obtain considerable relief from hot baths so that he stopped vomiting and was able to drink water. On the third hospital day the skin and scleras were slightly jaundiced. A surgical consultant found a tender mass in the epigastrium extending to both sides of the midline, but slightly more to the left. The edges of the mass wre indefinite; the whole mass was about 15 cm. in diameter. Rectal examination was negative. On the same day the gastrointestinal series showed some thickening of the gastric folds, and there was evidence of pressure along the lesser curvature and the posterior wall. The duodenal loop was enlarged the second portion was displacd to the right and showed evidence of somewhat lobulated compression from the region of the pancreas that also displaced the third portion of the duodenum downward. There were several diverticula in the colon. The spleen was enlarged. There was considerable fluid in the left pleural cavity. Linear areas of atelectasis showed in both lower lobes of the lungs, and the motion of both leaves of the diaphragm was slightly limited. On the following day the icteric index was 25, and the serum amylase was 78 units per 100 cc. Three hundred and fifty cc. of opaque, amber fluid, which proved to be sterile, was re-

moved from the left chest. The temperature remained normal.

An operation was performed on the fifth hospital day.

T. W. WOODMAN, M.D.

This is the story of a fifty-five year-old business man with a history of painless nausea and vomiting beginning six weeks prior to admission to the hospital. He had lost twenty-five pounds in weight, had had family and financial worries, and had been tense and nervous. The vomiting increased in severity and frequency until he was unable to retain any food or water. Vomitus had consisted of food and drink taken.

The record states that he had a mild degree of jaundice and that there was an indefinite mass about 15 cm. in diameter in the epigastrium which extended to both sides of the midline but more to the left. An opaque, amber fluid was present in the left chest which was sterile on examination. The other essential positive findings in the record are that the gastrointestinal series showed some thickening of the gastric folds, and there was evidence of pressure about the lesser curvature and the posterior wall of the stomach. The duodenal loop was enlarged; the second portion was displaced to the right and showed evidence of somewhat lobulated compression from the region of the pancreas that also displaced the third portion of the duodenum downward. The spleen was found to be enlarged.

The blood count was normal throughout and the urine revealed one plus albumin and rare casts.

If one can accept the x-ray interpretation in this case then we do have nearly conclusive evidence as to the location of the lesion. This is especially true if the abdomen was subjected to a three dimensional roentgen study. For, as has been pointed out by Samuel Brown, and I quote: "Displacement of the stomach and duodenum to the left and backward indicates a large liver. Displacement of the stomach and duodenum to the left and forward indicates a large kidney. Displacement of the stomach and duodenum to the left but neither forward nor backward indicates a large gallbladder. Displacement of the stomach and duodenum to the right and forward is due either to a large spleen, kidney, or pancreas. While displacement or lack of displacement of the stomach and duodenum in opposite directions in the ventral position, but with forward displacement in the lateral position, indicates a retroperitoneal tumor, either pancreatic or glandular. Enlargement and compression of the segment of the duodenal loop, both in the frontal and lateral projections, indicate a tumor of the head of the pancreas.

I will go all out on this case and make a diagnosis of a lesion involving the pancreas primarily. As far as I can ascertain, the clinical picture fits in well; as do the laboratory findings. I would ordinarily have expected the red count and hemoglobin to have been lower but since this man had been vomiting a lot prior to admission to the hospital, the count could well be the result of a hemoconcentration and therefore not particularly accurate. The jaundice noted is due to compression of the mass in the pancreas on the bile ducts.

I believe that inflammatory processes can all be ruled out in this case. The history is not indicative of an acute or chronic type of inflammation; the patient did not run a temperature, and the while count was normal.

I may be sticking my neck out way too far but I can only fit this story in with a malignant type of lesion for I am unable to account for the fluid in the chest except by metastatic involvement. No comment is made as to whether any search was made for tumor cells when the fluid withdrawn from the chest was examined.

The diagnosis in this case is, I believe, carcinoma of the pancreas with compression of the bile ducts and with metastases to the lung or pleura. There may or may not be metastases in the liver. There is the possibility that the primary carcinoma began in the ampulla of Vater or in the extra-hepatic bile ducts but if such had been the case I would have expected more jaundice and greater evidence of liver involvement. Pancreatic calculi could produce a similar picture to this insofar as the mass itself is concerned but no history is given of alcoholism nor does the x-ray show evidence of pancreatic stones.

The only other condition which I feel must be seriously considered in this case is tumor of the retroperitoneal glands and or of the kidney, benign or malignant. Apparently however, the kidney was not seriously considered by those who examined the patient for there is no evidence of retrograde x-rays or of I. V. pyelograms.

If this is a case of carcinoma of the pancreas —as I think it is—then detailed discussion of this

subject would be repetitious and boring to you —my colleagues. If my diagnosis is completely wrong, then I would be far off the track and look a little bit silly discussing the wrong subject—so maybe I'd better just sit down.

GEO. G. McKHANN, M.D.

This mystery is titled, "The Case of the Bilious Man, or Whence the Yellow Peril."

This patient was well until six weeks before admission. The onset with nocturnal vomiting suggests failure of the stomach to empty properly, altho psychic causes seem to have been suspected early. The pain beginning in the back and radiating around both sides to the front suggests a lesion of the pancreas such as carcinoma, or pancreatitis, or a posterior duodenal lesion, a tabetic crisis, radiculitis, or an external spinal lesion pressing on the cord, or some retro-peritoneal lesion. Mental symptoms of rambling speech, and failure to recall dates and places suggests a cerebral lesion, perhaps metastatic, luetic, vascular, or toxic.

A twenty-five pound weight loss in six weeks indicates a serious illness. The tumor six inches in diameter in the epigastrium with x-ray evidence of displacement and enlargement of the duodenal loop as well as pressure on the posterior wall and lesser curvature of the stomach, and the rapidly developing jaundice all suggest an intra-abdominal lesion as the cause of his nausea, vomiting and pain,—most likely a pancreatic lesion.

Pancreatitis seems to be excluded by the rather low serum amylase.

Tuberculosis of the pancreas might be possible, but that should be part of a hematogenous spread, and altho pulmonary disease is present, the chest x-ray is far from typical of pulmonary tuberculosis. Yet this diagnosis must be borne in mind, especially considering Judge Randolph's specialty. Tuberculous tumor formation would not be likely though.

A pancreatic cyst might give rise to such a tumor but would fail to explain the pulmonary signs with fluid, and also the cerebral symptoms. Pancreatic cysts fall into six classes. Retention cysts are due to obstruction of the ducts and are usually single. Proliferation cysts are multilocular cystadenomas, which may become malignant. Degeneration cysts result from inflammation or hemorrhage, and are usually small. Parasitic cysts are rare, single, globular, and may be large. These result from Echinococcus infection. Dermoid cysts are rare, and are usually retro-pancreatic. They are difficult to diagnose even at operation. Pseudo-cysts are most common, and result from trauma or inflammation. If a cyst, it was in the head of the pancreas, a relatively rare location. However, a cyst fails utterly to explain the pulmonary lesion.

Tumors of the pancreas may be benign or malignant. The former are usually benign adenomas of islet tissue which may rarely metastasize to the regional lymph nodes or the liver. They commonly cause hypoglycemia.

The malignant tumors are usually carcinomas, and are the most common of all. Carcinoma usually occurs in the head of the pancreas. Carcinoma of the pancreas accounts for 2 to 3% of all deaths due to cancer. Carcinoma of the pancreas occurs in middle and old age. It is three times more frequent in men than in women. Diabetes predisposes to it.

Metastases thru the lymph nodes and the thoracic duct account for the lung metastases, and thru the veins for the liver metastases. These facts account for the poor prognosis even with radical excision.

It is reported that thrombosis occurs in the veins of the extremities and cerebral veins quite often with carcinoma of the pancreas. That might account for his cerebral symptoms.

Pain results from involvement of the coeliac plexus. Pain in the back may be very severe.

Painful jaundice may occur early due to blockage of the common duct. Pruritus is common. Painful jaundice is more common in carcinoma of the pancreas, while jaundice associated with carcinoma of the ampulla may be painless. On duodenal drainage one finds pancreatic ferments diminished in carcinoma of the pancreas. Two recent cases were reported by McNeer and Ewing in which diagnosis was made by demonstrating pancreatic cancer cells in duodenal drainage by the Papanicalaui technique. Blood cells in such drainage are more indicative of carcinoma of the ampulla.

Diagnosis of carcinoma of the pancreas is made most often by x-ray. X-ray evidence of carcinoma of the pancreas consists of local evidence of pressure, such as a widened duodenal curve, and pressure defects in the duodenum. Sometimes a pressure defect may be due to pressure of the dilated common duct. The above are seen when the head is involved. Involve-

ment of the body spreads the fourth portion of the duodenum, and causes pressure defects in the antrum of the stomach. When the tail is involved, pressure defects may be seen in straightening of the lesser curvature of the stomach border, pressure defects in the hepatic flexure of the colon, and of the left kidney, and sometimes in the body of the stomach. Also, these organs may be directly involved by spread of the cancer into them. These x-ray findings seem to fit our case rather well, but I shall be more certain, if Dr. Watkins has come to the same conclusion. Arkin and Weisberg report using gas distention of the stomach to differentiate posterior gastric lesions. And visualization of the pancreatic artery might have helped.

A report of duodenal drainage findings is not given us. The diagnosis might have been further confirmed by duodenal drainage with a report on the Papanicalani stain, and evidence of decreased duodenal secretion with decreased amylase secretion, as well as of other chemical and enzyme tests. Blood lipase is usually increased in carcinoma of the pancreas, but we have no such test reported.

Other tumors involving this general region must be considered, especially such as might arise in the retro-peritoneal lymph tissue, but it does not seem likely that such would cause early jaundice.

An enlarged gall bladder, perhaps according to Courvoisier's laws, may have been the tumor palpated. Such could be consistent with the diagnosis of carcinoma of the pancreas, altho the location of the tumor suggests pancreas more than gall bladder.

A carcinoma of the pancreas with metastases to the lungs, and perhaps brain, would account for all of his signs and symptoms, except that the time interval is very short. And why should an operation be performed with such a diagnosis? Perhaps it was only to relieve pain, or for a cholecystojejunostomy to relieve his jaundice. Or, perhaps, it was only exploratory to prove my diagnosis, or perhaps theirs, wrong.

My diagnosis is Carcinoma of the Pancreas with metastases to the lung.

A second choice might be a low grade Chronic Pancreatitis with cyst formation and an inflammatory lung lesion, perhaps related.

W. WARNER WATKINS, M.D.

As we enter the month of March, the storm signals are out, and there is likely to be heavy weather ahead for the discussants. I have recently been studying the psychologic traits of sympathy and magnanimity, as exemplified in the Scriptural injunction,—"Do unto others as you would like to be done by." These character traits I do not find over-developed in our judges, who have been having a lot of fun at the expense of the poor discussants during the past months. I would just venture the suggestion that, according to my Scriptural teaching, there is always a day of judgment,—and next year these judges will be discussants, and some who have suffered much from their sadistic experiments will be the judges. It is too late now for repentance, but retribution is likely to be hot on their heels. After that sermon, let's get to our fat chewing.

Since this case evidently is loaded, I am immediately taking refuse in the storm cellar of the x-ray findings, where I feel safest, though by no means entirely secure,—and will work back from there.

The x-ray descriptions certainly mean pancreatic enlargement of some type, and with that conclusion the physical examination in the later stages of this record is in agreement. Thickening of the gastric folds, pressure defect upon the lesser curvature and posterior wall, are evidences of enlargement of the body or tail of pancreas, or both; enlargement of the duodenal loop, displacement of the descending duodenum and lobulated impression defects from the pancreatic side, with displacement of the transverse duodenum downward, are signs of concentric enlargement of the head of the pancreas. Having nailed that flag to our mast, we can look back and ahead, to see what the weather signs are, regarding the surety of this evidence.

This story is the sort that would very likely fool the clinician first consulted by a patient presenting this history and group of symptoms. An over-worked, over-worrying, over-tense business man, with family worries and business troubles, would almost certainly be told that these things are the cause of his symptoms. He would be told "not to worry," when he has worries which he must worry about; to "take it easy" when he cannot take it easy; to "relax" when he cannot relax; to "take a vacation" when he cannot see his way to this. Usually he will be given a lot of good advice, very little of which

he feels he can take, a prescription for phenobarbital, a pat on the back, and a bill for ten dollars. The patient will go his way with a feeling of resentment which will increase his gastric acidity and aggravate his symptoms, and incline him to seek out the nearest Naturopath.

Let's not forget that worries and anxiety, nervousness and tension, can start a chain of functional gastro-intestinal symptoms, resulting in loss of appetite, nausea, pain, weight loss, ending in ulcers, gastritis, colitis and a general breakdown,—but let's remember also that these same symptoms can arise from insidious organic disease,—and organic disease must be ruled out before we settle for a psychosomatic diagnosis. Having started out with the idea that this man has an organic lesion, we will reject all the psychosomatic camouflage in the first half of the record and regard those early symptoms as arising primarily from organic disease and being aggravated by the business and family worries, instead of being caused by them.

What sort of pancreatic enlargement does this man have? It must be either inflammatory or neoplastic. We can eliminate all types of acute pancreatitis, since the symptoms and low serum amylase would rule them out, leaving chronic pancreatitis and some sort of pancreatic tumor to consider.

Chronic pancreatitis would need to be diffuse to account for the enlargement of both tail and head, and if we accept the x-ray findings as I am doing, we needs must concede a general enlargement of the pancreas. The roentgen evidences of pancreatitis include: (1) calcium deposits of which we have no mention; (2) masses due to pseudocysts, diminishing the midline retrogastric soft tissue density,—and this we have; (3) evidence of adhesions, and there is good indication of this. Chronic pancreatitis can be associated with cirrhosis of the liver, and often is according to Dr. Edmondson. The jaundice, splenomegaly, and pleural fluid would have explanation in a possible cirrhosis. We have no mention of alcoholism in connection with this patient, but if we could dig back into his secret life, we might find empty whiskey bottles in the garbage pail as a result of his business and family worries. The relatively low serum amylase would be consistent for cirrhosis.

I will not try to discuss all the primary tumors of the pancreas, but mention only three types. Benign cystic adenoma is usually localized, more often in the tail, grows slowly and would not explain the symptoms, nor be consistent with the x-ray findings. Islet cell tumors are usually adenomas and 70% of them are benign. They are associated with a low blood sugar and symptoms of hypoglycemia, and we have no mention of such symptoms. One of the peculiar omissions from this record is the absence of any interest in the blood sugar,—either by way of an increase as in diabetes, or decrease as in hypoglycemia. To an ordinary guy on the side line it would seem that a demonstrable lesion of the pancreas would call for an investigation of the blood sugar, the urinary sugar, and other clinical laboratory evidences of destruction of pancreatic tissue. Carcinoma of the pancreas ordinarily develops as hard masses within the substance of the gland. The tumor may vary much in size, may be entirely within the gland substance, or may protrude from its surface in nodular outgrowths. Ewing cites 342 cases, of which 156 involved the head, 28 the tail, and 158 were diffuse. Serum lipase was elevated in only 40%, the diabetes seldom occurred. When the head of the pancreas is involved, obstruction of the common bile duct may produce jaundice. Metastases take place most frequently in the regional lymph nodes, the liver or the lungs.

Our problem then seems to narrow down to a choice between; (a) chronic pancreatitis of diffuse type, with jaundice, liver enlargement and pleural effusion explained on basis of common duct obstruction or cirrhosis, or carcinoma of pancreas with obstruction of common duct or metastases to liver to explain the jaundice, liver enlargement, splenomegaly and pleural fluid.

To make a choice between these would require more information than we have. We do not need an icteric index to tell us that a patient has jaundice when he is visibly yellow. We would like to know the van den Bergh reaction and other tests to decide whether the jaundice is obstructive or not. In addition to the sugar determinations mentioned, we need more liver tests, since there is a possibility of cirrhosis. We need to know more about the pleural fluid; it is said to have been cloudy, amber and sterile, but what about the cytology and chemistry? We need to know what the x-ray film shows after the fluid is removed and the lung uncovered and expanded.

It would seem that the clinicians studying this

patient, and especially the eager-beaver surgeons probably reasoned in this manner:—Here is a patient who is due to lose his pancreas; whether the evident enlargement is due to chronic pancreatitis or carcinoma, surgical exploration is indicated; so, why waste time with laboratory tests or prolonged and intricate x-ray examinations, since they cannot possibly stay our hand nor halt the inevitable. So, on to the surgery!

Did they find diffuse enlargement of pancreas with some obstruction to common duct? Could they tell wether it was chronic pancreatitis or carcinoma? Did they remove the pancreas and what did the pathologist report? Just to show how to bet three ways at once, my diagnosis is:—

Chronic pancreatitis, developing into pseudocystic adenoma, with transformation into cystadenocarcinoma. Removal of pancreas by a piece of brilliant surgery. Patient recovered temporarily only to die later from metastases in liver and lung.

DIFFERENTIAL DIAGNOSIS

Dr. Richard Warren: This case presents the problem of differential diagnosis of an epigastric mass, which caused considerable vomiting, slight jaundice and fluid in the left chest. I think we can assume at the outset that since most of the symptoms were localized in the epigastrium, the fluid in the left chest was a sympathetic effusion from infradiaphragmatic disease. Furthermore, it seems logical to suppose that this infradiaphragmatic disease was not necessarily of a suppurative nature. The normal white-cell count would not necessarily convince me of this, were it not also true that the pulse and the temperature were normal. Conditions, therefore, that might lead to the more conventional type of subhepatic and left subdiaphragmatic abscess, such as perforated peptic ulcer and phlegmonous gastritis with abscess, I tend to put into the background. This decision is particularly forceful if one considers that the gastrointestinal series showed no evidence of either.

A perforated gall bladder is unlikely for the same reason, in addition to the fact that the symptom of pain did not make itself evident until well along in the present illness.

There is so much evidence in this case pointing toward the pancreas—namely, the depression of the lesser curvature of the stomach, the displacement laterally of the second portion of the duodenum, the pain in the back, the elevated serum amylase and the slight jaundice—that is it difficult to escape the conclusion that the lesion was in that organ.

The question regarding the nature of the disease then arises. I believe there are two major types to be considered. The first, and least likely, is apoplexy or rupture of some branch of the splenic artery that could cause a large mass in this region and simulate disease of the pancreatic parenchyma itself. Such ruptures, however, are usually catastrophic and run a more rapid course than this. Furthermore, a hemorrhage causing a mass of this size would have caused an anemia, which was not present. I would vote against apoplexy.

The second type of disease in this patient, and the one that I feel to be most likely, is acute pancreatitis with areas of pancreatic necrosis leading to formation of a so-called pseudocyst of the pancreas. Such a cyst very often occupies the whole lesser omental cavity extending to the diaphragm and causing sympathetic pleural effusion above. It generally contains a serous type of fluid with active pancreatic enzymes within it, although these enzymes often erode small blood vessels and cause rather massive bleeding within the cavity of the cyst. If the cyst is seen early it may contain broken down bits of pancreatic tissue and then is generally termed a pancreatic abscess. The jaundice is caused by inflammatory edema of the head of the pancreas — squeezing of the lower end of the common duct rather than encroachment on the common duct by the cyst. I am not prepared to say definitely what the contents of this cyst were but believe they were of such a nature as to put the mass on the borderline between pancreatic abscess and pancreatic cyst. My diagnosis, therefore, is a large inflammatory pseudocyst of the pancreas causing pleural effusion.

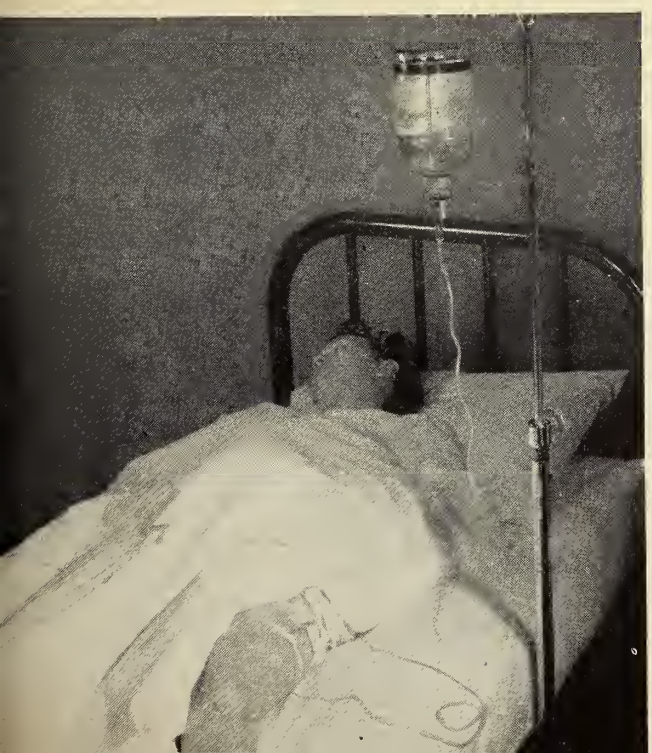
Dr. Reginald Lingley: To begin with, I think this would have to be a tumor of the pancreas. The duodenal loop is tremendously enlarged. There is pressure on the lesser curvature of the stomach, so frequently associated with pancreatic tumor. The irregular mucosa in the second portion of the duodenum and the presence of what looks like small nodules are very much against a cyst. A cyst of the pancreas is sharply defined and smoothly rounded. Although it can produce a pressure defect on the fundus of the stomach and enlargement of the duodenal loop,

Use of Alidase® Permits Subcutaneous Administration of Fluids at Usual Intravenous Rates



In operative states—Alidase circumvents the complicating factors of venous thrombosis and "wornout" veins which frequently make fluid administration by vein difficult and dangerous. Simplicity and safety of Alidase make hypodermoclysis a method of choice for preoperative preparation and postoperative maintenance.

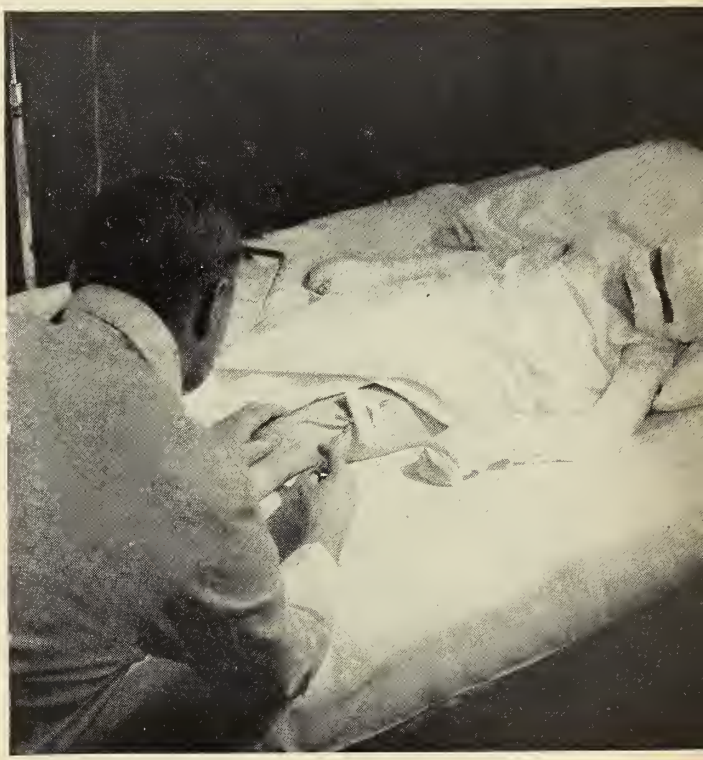
In burns—Plasma and electrolyte solutions can be given subcutaneously at effective rates when Alidase is employed; collapsed veins or risks of thrombosis are not a problem with this method.



Addition of Alidase to the first few cubic centimeters of fluid during hypodermoclysis speeds absorption to a degree approximating that of the intravenous route. Use of highly purified hyaluronidase in this manner avoids the well-known difficulties encountered with venoclysis, saves valuable nursing time and is more comfortable to the patient.

Hechter, Dopkeen and Yudell[1] have found that the use of hyaluronidase has "markedly increased the rates of absorption and administration of hypodermoclysis with no untoward reactions." They also found that extremely small amounts of this enzyme facilitated the absorption of fluids in that greater amounts of fluids were absorbed by the patient in a given period of time and that the localized swelling following hypodermoclysis disappeared more promptly.

Similar results with Alidase were recounted by Schwartzman, Henderson and King.[2] They observed "that absorption of various types of solutions, such as saline, glucose in saline, Hartmann's solution, Ringer's solution, penicillin, streptomycin, Adrenalin, and procaine was facilitated in every case."



In toxemias of pregnancy—Urgently-needed parenteral fluids may be administered subcutaneously with the aid of Alidase, eliminating risk of thrombosis attending repeated intravenous administration of electrolyte solutions. Alidase is the highly purified Searle brand of hyaluronidase and is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

G. D. SEARLE & CO. *Research in the Service of Medicine*

1. Hechter, O.; Dopkeen, S. K., and Yudell, M. H.: The Clinical Use of Hyaluronidase in Hypodermoclysis, J. Pediat. 30:645 (June) 1947.
2. Schwartzman, J.; Henderson, A. T., and King, W. E.: Hyaluronidase in Fluid Administration: A Preliminary Report, J. Pediat. 33:267 (Sept.) 1948.

the enlargement is smooth and sharply defined whereas this is quite nodular. This is not a usual place for an aortic aneurysm. We usually see it on the left side. This extends to the right and corresponds exactly to the head of the pancreas. In addition to the abdominal findings we have fluid in the chest on the left and areas of atelectasis.

Dr. Claude E. Welch: This was an interesting problem in differential diagnosis. The rapid appearance of the epigastric mass, with jaundice and left pleural effusion combined with severe prostration, made me believe that we were probably dealing with a subacute pancreatitis and a large pseudocyst of the pancreas. Carcinoma of the pancreas was considered as an alternative possibility.

The patient's rapid decline made it clear that unless some dramatic relief could be obtained rapidly by operation he would die. Accordingly he was explored with little delay. At operation he was found to have a great deal of bloody fluid throughout the abdomen, with small nodules that were grossly typical of fat necrosis. There was a large hard mass involving the entire pancreas and posterior wall of the stomach. Several of the nodules were removed for biopsy, and a jejunostomy was performed.

CLINICAL DIAGNOSIS

Acute pancreatitis.

DR. WARREN'S DIAGNOSIS

Inflammatory pseudocyst of pancreas.

ANATOMICAL DIAGNOSES

Adenocarcinoma of pancreas, with retroperitoneal and splenic extension, and with microscopic metastases to lungs and kidney.

Hydrothorax, bilateral.

Atelectasis, left lung.

Adenoma of islets of Langerhans, microscopic.

Dr. Tracy B. Mallory: The biopsy specimen removed by Dr. Welch showed a tumor that we thought was epithelial in origin and consistent with primary cancer of the pancreas. The patient went rapidly downhill after operation and died. At postmortem examination we found the pancreas almost totally replaced by tumor. The same tumor had grown into the hilus of the spleen and occupied two thirds of the spleen. There were metastatic extensions along the retroperitoneal lymph nodes, no metastases in the liver and microscopic metastases to the lung. The sections confirmed the original impression that this was a primary carcinoma of the pancreas. The fact that it had involved the spleen so extensively would suggest that it started near the tail of the pancreas and only secondarily reached the head.

A DOCTOR LOOKS AHEAD

Dr. Margaret Loder, Rye, N. Y., was the first woman physician ever to serve as president of her county (Westchester) society. She retired from the office recently, and left behind a wonderful bit of advice to her fellow physicians. Here is an excerpt, which served as the basis for an editorial in the New Rochelle, N. Y., Standard-Star:

"We have just passed through a period in which the medical profession was put on the defensive; a period in which programs for health insurance were initiated and efforts made to furnish good medical care to all of the people at a cost which they would be able to pay and at the same time retain freedom of choice of physician.

"Now that we are to have a change in government and policies, it is not at all impossible that many of us may sit back and feel that there is no need for continuing to protect our freedom, and at the same time to give to our people the very best that they can have at a cost which each one will be able to pay.

"Perhaps many of us will feel that we can relax, and sit back and take it easy. That is not so. We are never going back to the 'good old days.' The Cadillac and airplane have replaced the horse and buggy, and the thinking and demands of our people have not remained behind but have kept pace with the more recent methods of transportation. We have no right to be complacent. The medical profession must not wait for others to do their job, they must lead the way."

Like the newspaper, we can't help but give hearty approval to that sentiment. Now, merely because the "heat" is off, is no time for the medical profession to relax.

A.M.A. Secretary's Letter





SWALLOWED WHOLE

NEW

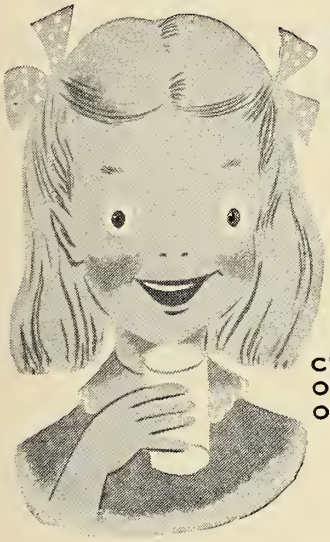
FLAVORED

CHILDREN'S SIZE

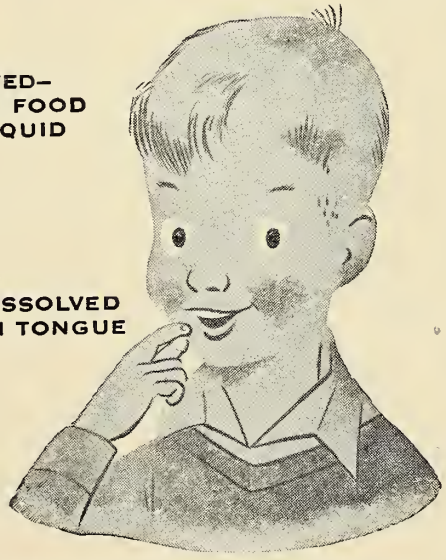
BAYER

ASPIRIN





CHEWED— OR IN FOOD OR LIQUID



DISSOLVED ON TONGUE

- The Best Tasting Aspirin You Can Prescribe.
- The Flavor Remains Stable Down to the Last Tablet in the Bottle.
- 24 Tablet Bottle . . . 2½ gr. each 15¢

2½ gr. ⇨ 1¼ gr.

Grooved Tablets— Easily Halved.

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc., 1450 Broadway, New York 18, N. Y

The PRESIDENT'S *Page*

POLITICAL ACTIVITIES IN WASHINGTON

Dr. James R. Reuling speaker of the American Medical Association's House of Delegates, has called a special meeting of the House for March 14 in Washington to discuss and take a position on President Eisenhower's proposals for creating a new cabinet department to handle health, education and social security. One prominent layman is on the program, President Eisenhower, who has accepted an invitation to address the delegates briefly just before they settle down to discuss his reorganization plans. Details of the plan have not been announced, but we are assured they will be made available before the special meeting. We do know, without seeing the official plan, that the President and FSA Administrator Hobby are well aware of the importance of the government's health functions. And it is reassuring to know that they understand the medical profession's views on the proper role of the federal government in these matters.

One of the other large stories to come out of Washington has to do with the Bricker resolution. While being prepared to hear both sides of the issues, senators supporting the proposed amendments to the Constitution are anxious for an early action on the measure. The proposal calls for a Constitutional Amendment banning treaties and executive agreements that would abridge any domestic rights of American citizens. Chairman Langer of the Senate Judiciary Sub-committee declared at the outset of the hearings that, quote, "We want no delay." At this writing a date for Secretary of State Dulles to testify had not been selected, and there was no official word on the stand the Eisenhower administration would take. However, Senator Bricker who sponsors the Resolution along with sixty-three other senators has informed the Langer Sub-committee that he had talked with Mr. Dulles and other high government officials and he had found a common desire to work out something. In his testimony before the Sub-committee Senator Bricker singled out International Labor Organization as one of the United States agencies working on treaties effecting American citizens. (The budget for fiscal 1954 proposes that the United States spend $5 million seven hundred thirty-four thousands dollars on three International agencies active in health and welfare, International Labor organization. World Health organization and Pan-American Sanitary organization. According to an United Nations report the United States each year pays 25 per cent of the total of ILO expenses.) The Senator commented that "ILO's modest ambition is to become the economic overseer of all humanity." He said his bill would make humanitarian treaty subject to two conditions: (1) No such treaty could be effective if it would undermine the Constitutional Rights of the American citizens. (2) No such treaty would be effective if it would entrust the rights of American citizens to supervision of International Agencies over which they exercise no control. Among the organizations supporting the resolution are the American Medical Association, The American Bar Association. Opposition witnesses include the Association of the Bar of the city of New York and B'nai B'rith. Opposition statements were filed by individuals and religious group.

I do not believe that we are old-fashioned in our thinking, when we say we feel definitely that the United States belongs to its citizens. We are very bitterly opposed to any interference by any organization whatsoever that infringes on the rights of American citizens. It will pay each and every one of us to watch the course of this Bricker resolution and it may be necessary that each and every one of us sends some telegrams and writes some letters if the storm clouds gather against this resolution.

THOMAS H. BATE, M.D., President, Arizona Medical Association

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 MARCH, 1953 NO. 3

EDITORIAL BOARD

R. Lee Foster, M.D. .....Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. .....Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. .....Phoenix
Howard D. Cogswell, M.D. .....Tucson
Louis G. Jekel, M.D. .....Phoenix
Frank J. Milloy, M.D. .....Phoenix
William H. Oatway, Jr., M.D. .....Tucson
Leslie B. Smith, M.D. .....Phoenix
Arie C. Van Ravenswaay, M.D. .....Tucson

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman .....Phoenix
Carroll C. Creighton, M.D. .....Flagstaff
Donald E. Nelson, M.D. .....Safford

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Business Manager, 426 Heard Building
Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

EDITORIAL

CONTRACEPTIVES BY MOUTH?

The reader should not jump to conclusions. Almost every physician has encountered at some time in his career the patient who requests something she can "take" to interrupt an unwanted pregnancy. Requests for something "to take" to prevent conception have not been numerous since the primary notion of contraception for many years seems to have been that it is accomplished either through abstinence or by means of mechanical devices or topically applied chemicals or by a combination of these three. Now, however, if the work of Benjamin F. Sieve[1] is any indication an antifertility drug which may be taken by mouth may someday be available. This investigator has administered phosphorylated hesperidin to 300 selected couples specifically for a study of its antifertility effect. With but two exceptions, no pregnancies occurred during the course of the test period. The two failures occurred in couples who had failed to follow faithfully and without interruption the course of medication prescribed.

Administration of the drug was simple, five tablets per days being required, two being taken at breakfast, one at lunch and two at dinner time. Both partners were required to take the preparation and a period of ten days was needed for sufficient concentration to build up to prevent conception. If, at any time, the drug was discontinued on the part of either partner for as long as 48 hours, the ten day period of medication must again be observed before sterility could be expected.

The drug showed no apparent toxic effects in the couples studied and there was apparently no decrease in libido. In fact, a significant increase in the frequency of coitus was found in the group.

When this news reaches the popular magazines, and it will, physicians will be deluged with inquiries. You have now been alerted. Prepare yourself.

Science marches on.

1. Sieve, Benjamin F., A New Antifertility Factor. Science Vol. 116, No. 3015, pp. 373-385, October 10, 1952.

HERE'S NEW FILM CATALOG

A revised list of medical and health films has been prepared by the AMA's Committee on Medical Motion Pictures. Brief descriptions, running time, and rules and regulations are included in the catalog for 78 medical films which are available from the Committee Copies of the list man be obtained from the Committee.

TOPICS OF *Current Medical* INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

This first paragraph can be a last warning to get your reservations for the SUPER-COLOSSAL MEETING in Los Angeles, May 18 to 23, of THE NAT'L. TB ASS'N. AND THE AMERICAN TRUDEAU SOCIETY. . . . It should be a large one, since it offers a chance for easterners to come west. It should be a medically good one, since data on chemotherapy and new surgery is piling up for analysis. . . . It also should be good entertainment (and it had better be), since those in charge have bragged for months. Non-medical people, doctor's wives, et al., will have a constant series of trips to such various places as the Huntington Galleries and Museum, a baseball game, meals in Old Mexico areas of the city, a trip to Crash Corrigan's movie ranch, etc. . . . The weather should be good, and there's always a chance to yak at the Angelenos if they fail to make the meeting 5 times better than Boston or Philadelphia.

The ABUSES OF CORTISONE and Corticotropin have been concisely described by Salassa in MINNESOTA MEDICINE. . . . There are several contraindications to its use. Peptic ulcer is the most serious, and can be biolently flared by the corticoids. The basal and nocturnal gastric acidity rises 200%. Symptoms and bleeding and perforation may result. . . . Tuberculosis is adversely affected, tho symptoms of inflammation are minimized while the drug is given. The activation occurs after therapy has long continued or been stopped. (There is some evidence that simultaneous antibacterial therapy will allow cortisone usage in TB). . . . Emotional disturbance may occur, or be worsened, by the two substances. Psychoneurotic or psychotic reactions may be produced.

Another CORTISONE comment concerns its COMBINATION WITH AN ANTIBIOTIC (not an antihistamine or vitamin B, believe it or not). . . . Cortisone relieves most inflammations of the eye, regardless of cause. Neomycin inhibits almost all bacteria likely to invade the eye. . . . Naturally we then have 'Neosone', an ointment by Upjohn.

Enough information on 'CAT-SCRATCH DISEASE' has now appeared in the medical literature so that we can know a fraction more than the readers of 'Time' Magazine. . . . The condition was first reported by Debre in Paris in January 1950, tho Foshay of Cincinnati has collected a score of cases in the previous 20 years. . . . Sixty cases were reported by Daniels and MacMurray in April 1952 from 15 states, Canada and Hawaii. Cat contact had occurred in 55 cases, cat scratch in 33 cases, and cat bite in 3 cases. Sixteen were involved in 7 household epidemics. Suppuration occurred in 33%. Lymphadenopathy was general, and lasted from 2 to 26 weeks. . . . Foshay showed that the pus was sterile, but it could be used to produce an antigen which gave a specifically positive skintest. . . . A case is reported by Quinn (in the J. Mich. State Med. Soc.) which had a positive skintest, a duration of 8 weeks, and an apparent response to terramycin.

Physicians other than urologists may not know how to DIAGNOSE PROSTATIC DISEASE BY X-RAY. Even urologists may not know how they do it in Sweden. . . . Nils P. G. Edling reports on a technic which consists of taking films from various angles while a water-soluble radiopaque medium ('Abrodil') is injected, per urethra, into the bladder, and then expelled by micturition. . . . Inflammation, hypertrophy, cancer, contrature of the bladder neck, etc., produce changes which may result in valuable diagnostic signs.

Arizona is being exposed to some MEDICAL PUBLICITY which it can well use, and should appreciate. This Osler approves of it. . . . The items consist of a series of articles on 'Arizona TB. Problems' in The Arizona Register. . . . One can't find a more lucid and forthright column than the one by Dr. Bill Melick, titled 'Advanced Methods Bring More Recoveries in Shorter Time' . . . They may help crystallize the state's attitude towards the disease, especially needed now that the citizens committee has reported.

The MORTALITY OF MEDICAL JOURNALS in California continues to be high. A very good publication, 'SEARCH Magazine' has gone under after about 2 years. . . . 'Search' was published for a trial period by the California Tuberculosis and Health Ass'n. Everyone liked the modern format and newsy California health article. They reprinted one article which appeared in ARIZONA MEDICINE. . . . When the Editors attempted to put it on a commercial basis, the support did not appear.

Here is a therapeutic tip which may be worth further trial. The report of a result in one case, or Just What We Have Always Warned Against! . . . The lesion was an infiltration of the small vessels in the fundus of the eye, with small hemorrhages. It is assumed by many that this is of tuberculous etiology, tho the lungs are clear by

(Continued on Page 110)



MEDICAL & DENTAL

Bulletin

Published Monthly By

MEDICAL & DENTAL FINANCE BUREAU

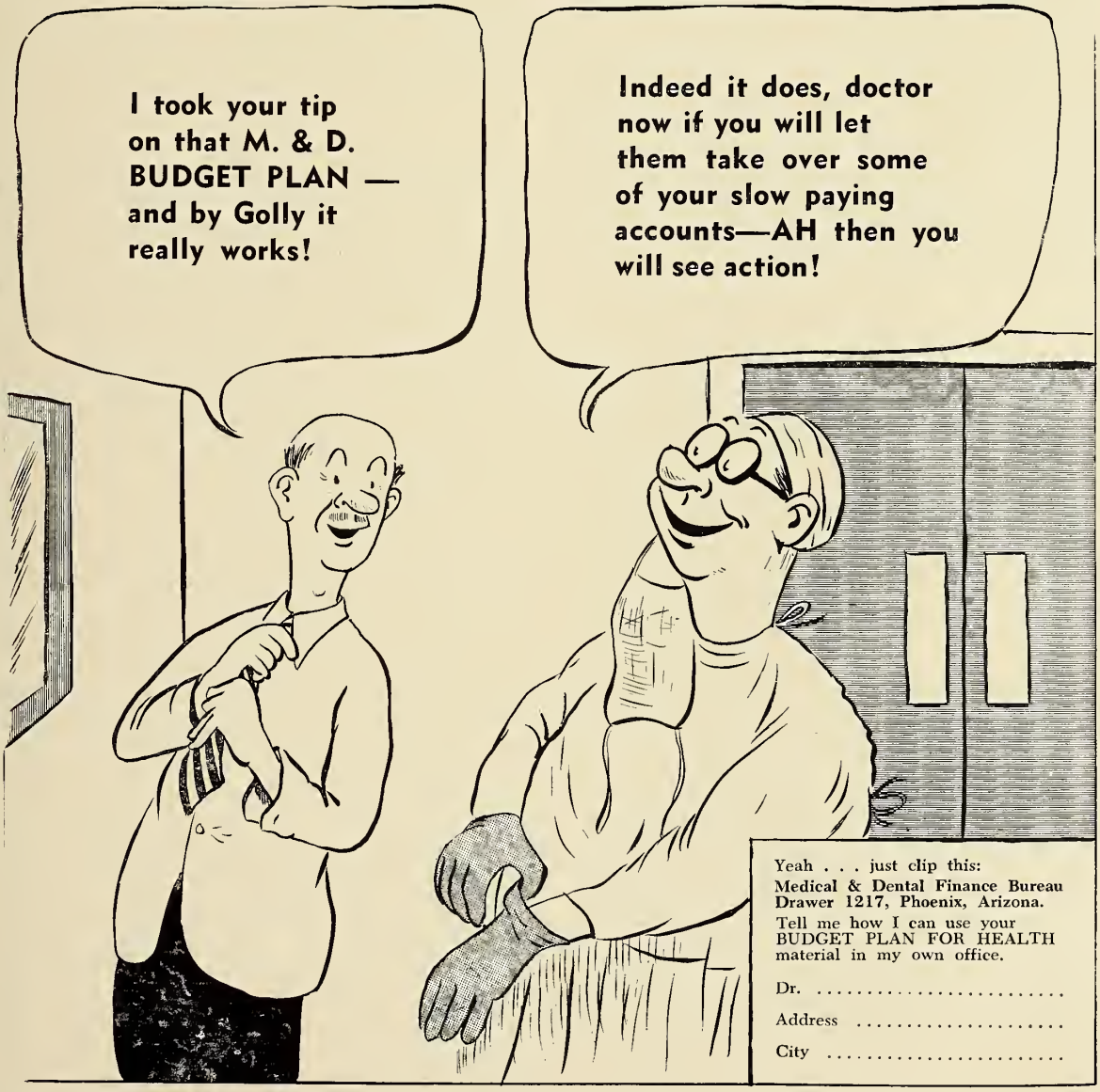
GEO. E. RICHARDSON, PRES.

HOME OFFICE:
FIRST STREET AT WILLETTA
ALPINE 8-7758

DOWNTOWN OFFICE:
407 PROFESSIONAL BLDG.
ALPINE 4-4688

Issued Monthly

Free to Practicing M.D.s



Yeah . . . just clip this:
Medical & Dental Finance Bureau
Drawer 1217, Phoenix, Arizona.
Tell me how I can use your BUDGET PLAN FOR HEALTH material in my own office.

Dr. .....

Address .....

City .....

x-ray. Some people attempt tuberculin hyposensitization, tho it promises little. . . . On the premise that it could be connected with TB, and because the drug is nearly non-toxic, isoniazid was given to this one case, 50 mg. TID for 3 months. At the end of 4 to 6 weeks the lesions (chiefly macular) were markedly cleared and vision was restored by 50%. Tuberculin, cortisone, etc., had failed. . . . Too bad we don't know of 50 cases.

It is sometimes surprising to hear of second-generation members of famous families. We hear of the retiring-type Jon Lindbergh, and Allen Hoover, and the Roosevelts (sic). . . . In the Ohio State Medical Journal we find one not generally known,—DR. WARREN G. HARDING II, president of the Columbus Academy of Medicine.

A sudden interest in a simple ANTISEPTIC COMBINATION has popped up on both sides of the Atlantic. A solution of 1% iodine in 70% alcohol is said to be efficient in several usages. . . . P. Story tells of its effects as a skin disinfectant (Brit. Med. J., Nov. 1952), when it killed all test organisms in 30 seconds. . . . Cummings and colleagues (UPHS) have found the same preparation the most effective in sterilizing thermometers. (The other major part of thermometer technic is that it be wiped immediately after the temp has been taken, before immersing in the iodine-alcohol.

Parke, Davis and Co. is fighting back in an effort to clear CHLOROMYCETIN from the stigma of bone-marrow depression. . . . They quote the publication of more than 1,800 reports on the drug; the 8 million courses of therapy which have been used; the fact that only 37% of the 539 cases were associated with use of Chloromycetin, alone or with other drugs; the fact that no blood dyscrasia was found in 1,700 reported cases which had blood studies; the fact that the incidence of aplastic anemia has not increased since first use of the drug in 1949; etc. . . . Statistics are a good defense, but no help in the individual case. . . . As Dr. Alvarez says, use antibiotics only when specifically and absolutely necessary. One could add, use Chloromycetin only when needed, and when another drug will not do, and where the hazard without far exceeds the hazard with.

The UCLA School of Medicine sponsors a great many POST-GRADUATE COURSES, and one can rarely find in them a notable fault. The notice which has just been received has a few odd points, however. . . . A course in 'Techniques of Hypnosis' is to be given by three instructors in psychology, two of which are from VA hospitals. The course is for 'physicians and dentists' tho all of the instructors are Ph.D's, not M.D.'s The cost of enrollment is $100 (one hundred dollars).

Specialty journals contain good articles on CHEMOTHERAPY OF TUBERCULOSIS (Dr. Hinshaw of San Francisco suggests use of the term 'antibacterial'O, but the best two recent summaries are in unusual publications. . . . Dr. Julia Jones of New York describes the use of therapy at Belleview in the Merck report for January. . . . Dr. Nicholas D'Esopo of the Surmount V.A. Hospital in the Adirondacks tells of the long-term use of drugs — a concept which he originated. PAS made it possible by allowing prolonged use of streptomycin. If therapy is not interrupted, resistance occurs less often and bacilli continue to act sensitive. Gaps in therapy are hazardous when they occur late in the course, or if the gaps are lengthy. Early clearings in x-rays probably results from resolution of the non-necrotic areas of disease; the large necrotic, caseous areas should possibly be removed, even when encapsulated and when the bronchial secretions are negative. . . . Dr. D'Esopo is still not sure whether the small residual nodules (after long-term chemotherapy) should all be removed, since many show only non-viable tubercle bacilli. He is trying to learn how to select cases for resection. It is also necessary that the amount of rest be reevaluated.

California medical affairs have produced two unusual modes of procedure. They are interesting, whether we wish to emulate or not. . . . The California Medical Directory contains an alphabetical list of members, with a half dozen biographical facts attached. What makes the listing different is a miniature PICTURE OF EACH MEMBER under his or her name. . . . The recent election of officers for the Los Angeles County Medical Society was preceded by a regular CAMPAIGN for each slate. Letters describing the merits and accomplishments of the presidential candidates were repeatedly sent to the several thousand members.

The death of Dr. Philip Jaisohn in Pennsylvania last year brings a fabulous life-story to print in the D.C. 'Medical Annals'. It reads like both adventure and faction. . . . Dr. Jaisohn was born of a merger of two royal Korean families. He was a scholar by the age of 12, and as an adolescent he studied in the Japanese Military School. He became a liberal who eventually helped kidnap the Korean King in order to obtain social reforms. He fled with a price on his head, obtained an education in the United States with the help of friends. . . . While acting as a translator for the Surgeon General's Library he became a friend of Drs. Billings, Gray, and Walter Reed, and was impelled to study medicine by them. . . . He and Dr. Reed then attended the lectures of Dr. William (Pops) Welch at Hopkins. Dr. J. then became pathologist at Garfield Hospital in Washington. He also became an American citizen. . . . Influential Koreans later persuaded him to return to his native land as advisor to the (new) Emperor. He founded a club and a newspaper for independent thought, exposed corruption, fought destructive foreign interests, and at-

tempted to improve the education and health of the people. He was called 'The Father of His Country' but the Japanese attempted to assassinate him. He returned to the States, repeatedly pressed the case of Korea before the world. . . . He returnd to pathology in hospitals in Philadelphia, Chester, and Reading. He consulted on Korea in 1947-48, was president of their Red Cross, and refused the urging that he become president of Korea because he was an American. He was author of a book, was a Mason, a Rotarian, and recipient of numerous awards. His wife was a cousin of President James Buchanan. He lived 91 colorful, dangerous, helpful years.

The eagle-eyed editor of the 'Nursing Home Administrator' won't like this paragraph, but it has to be written in the interests of Beauty. . . . The mag. again has a sordid cover, tho doubtless it is commercially valuable,—rubber urinals for incontinents. . . . It is balanced a bit by a fairly good article on deodorization, and the photograph of a new gadget. Anyone would wish he had thought of the gadget—a tiny rubber wheel, acting as a bed-bumper, attached horizontally to the back of the two legs at the head of beds.

"LETTERS TO THE EDITOR"
DISEASE IMPORTS?

February 9th, 1953

R. Lee Foster, M.D.
Editor, Arizona Medicine
507 Professional Building
Phoenix, Arizona

My dear Doctor Foster:

In qualifying this letter I wish to state that my avocation has to the hour involved nearly two Million miles of travel throughout the United States, Canada, Mexico, Cuba, Alaska, and abroad. Travel, based on an objective mission, missing no bets in observation and enlightenment.

A matter that has been sharply brought to my attention has been the threat potential as well as actual, of maladies from off our shores, being carried in by "carriers"—be they persons, luggage or souvenirs.

This is especially true from the Asiatic areas, witnessed by the tens of thousands of returning Military and Civilian populations and their families. Ships are docking every day in such ports as San Francisco, Seattle, Tacoma, and elsewhere, with the hordes of humans coming ashore and many boarding public transportation for homes elsewhere. Along with them, or soon to follow, are millions of pounds of luggage, duffle bags, curios, souvenirs and items of Oriental manufacture, many of which are doubtless made without any consideration of "standards" as to the raw materials.

Whether it is true or not — I have been told by many of these folks that they receive a very cursory de-lousing — or for a better word — act of disinfecting. If this is true, one might shudder at the thought of what may be in the offering for this nation through the entrance of ancient or even modern Oriental germs, many of which are a perplexity to the Medics not only in skin conditions and fungus, but fevers and respiratory maladies.

One case is a friend of mine who received what looked like very attractive and unique pads for setting hot dishes onto the dinner table. The material looked like a beautiful sort of Pampa grass, woven. Not long afterwards, a skin rash broke out, and it baffled the Medics, and finally by x-ray and Radium, the condition shows some signs of clearing up.

Another is the recent tragic death of a number of infants in the area of Tacoma, Washington, stricken by fever etc., called upon by the Medics and given the customary treatment with the provision to be seen again the next day. The "next day" never came — they were DEAD. What germ? In California this past year they had a very serious sleeping sickness condition they blamed on a mosquito. Where did it come from? None less than Mme. Chiang Kai Shek, came here for a treatment of a very stubborn skin condition. I know others who made trips around the world and picked up conditions that have never been coped with! There is also the common knowledge that the great Southwest of this United States is ripe for an uprising of the Bubonic Plague. One has but to be in Venice, and see to this day the Gondolas painted black as coffins — in memory of this horror there in past history.

Anyone 40 years old recalls the terrible Spanish Influenza plague after World War I, and the millions of deaths like flies. It is argued the use of new weapons has stirred up ancient germs in parts of the world. The atom blasts in Nevada, I recall in less than four days had the City of Cincinnati, Ohio, checking the snow-fall for radio-active content before it was deemed safe for the kids to make snow-men — and of course the elements were by good fortune to be found insignificant.

What I am leading to — IS — are there strict

enough measures being used in connection with all who come back from the distant shores, in this very matter of disinfectants and delousing, not alone of the men and women and children of Service and Military ranks as well as Government and other employes from abroad — and PARTICULARLY — how much attention is given the luggage and items they bring in as curios, souvenirs, etc. etc! One the planes from Havana, only — they spray them passengers and all before landing in Miami. You do not set foot on Irish soil, nor Italian and many others without a health certificate going to Europe. I know because I've filled them out.

Being a man who is intensely interested in my fellow man, a humanitarian at heart — I am only hoping and praying this land of ours will be saved from the ravages of plagues and the like by being extremely careful in our national boundaries, as the human and other cargo come within the borders and then scatter to the 48 states, and have found many sympathetic ears' as I propound these possibilities along my pathway! Some editorial comment is noted in such papers as the Seattle Post-Intelligencer and others, but it may call for some "voices in the wilderness of human relations" to cause alarm, and it is to this end I hope you will see fit to try for some serious thought in your most honorable profession and among your honorable gentlemen of that group.

Most sincerely and respectfully—

Elmer E. Schlotz
4561 Lowell Blvd.,
Denver 11, Colorado

Interesting comment regarding a danger that cannot be ignored. It is to be hoped that this may precipitate some investigation or inquiry into these matters by our profession and the Public Health service.—Ed.

Dear Sir,

In perusing the current literature with which this journal is concerned, we note that an ever increasing number of its articles deals with problems pertaining to research on "stress" and the so-called "adaptive hormones" (ACTH, STH, corticoids, adrenergic substances, etc.).

We are writing you because, in our opinion, the success of research in this complex and rapidly developing field largely depends upon the prompt availability and evaluation of relevant publications, a task for which we shoud like to solicit the assistance of your readers.

In 1950, our Institute has initiated the publication of a series of reference volumes entitled "Annual Reports on Stress" (Acta Medical Publishers, Montreal) in which the entire current world literature is surveyed every year (usually between 2000 and 4000 publications). Up to now, we had to compile the pertinent literature partly from medical periodicals, monographs, abstract journals and partly from reprints sent to us by the authors themselves. Of all these, reprints proved to be the best source of data which we felt deserved prompt attention in our annual reports. Hence, in the past, we have sent out several thousand individual reprint requests to authors of whom we knew that they are currently engaged in research on stress and allied topics. Even this procedure did not give us the wide coverage which would be desirable, because it is materially impossible to contact all these authors individually and it often takes too much time to get the requested reprints.

It is evident that in order to insure prompt inclusion of publications in the annual reports, these surveys must develop into a cooperative effort between the authors of original papers and the reviewers. This cooperation was greatly enhanced of late by the publication of announcements, in several medical journals, encouraging investigators interested in stress research to send us their reprints for this purpose as soon as they become available.

We should be grateful if by the publication of this note, you would also bring this problem to the attention of your readers.

We are Sir,

Very sincerely yours,

Hans Selye, M.D., Ph.D., D.Sc., F.R.S.(C),
Professor and Director of the Institute of Experimental Medicine and Surgery.
Alexander Horava, M.D., Co-author of the "Annual Reports on Stress."

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

Defense Department Proposes Regroupings In Doctor Draft

Defense Department's proposals for amending and extending the Doctor Draft law were disclosed yesterday at a Pentagon meeting attended by representatives of the AMA and eight other professional associations. In brief, the main provisions include the following:

1. All registrants except those in the present Priorities I and II to be divided into two groups. *First* to be taken, those with no military service, who would be inducted by age, with the youngest going first. *Next,* those who have had active duty, with those having the least active duty inducted first. (Those remaining in the present Priorities I and II to be called immediately on expiration of deferrals.)

2. Maximum age for inductions would be maintained at 51. (A lower maximum had been discussed informally.)

3. Men called to duty as reservists would be commissioned in grades "commensurate with professional education, experience or ability;" in other words, current arbitrary limitarions on numbers of higher commissions would be waived in case of medical officers.

4. Other provisions—law to expire July 1, 1955; National and State Advisory Committees continued and strengthened; World War II service with cobelligerents recognized for purposes of Doctor Draft; $100 special pay not disturbed. Reserve commissions would terminate upon completion of stipulated active service.

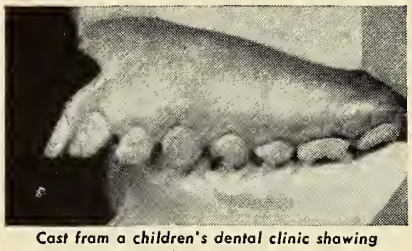
A.M.A. Washington Letter

ODM To Handle Gamma Globulin Distribution

The Office of Defense Mobilization has taken over responsibility for distribution of gamma globulin for use in treatment of paralytic poliomyelitis, infectious hepatitis and measles. Details of distribution are being evolved by a National Research Council committee of physicians (see Washington Letter No. 4.) It is understood the plan contemplates distribution of the central supply of gamma globulin to State Health Officers, who will be responsible for its final local use.

A.M.A. Washington Letter

RECENT DENTAL LITERATURE ADVOCATES BAN ON THUMB SUCKING AND NAIL BITING



Cast from a children's dental clinic showing malocclusion due to thumb sucking

Authorities show developmental defects in dental occlusian when vicious habits are nat treated. Children and adults alike are subject to these injuriaus mauth habits.

Nagging and rebuke are psychalogically unsound and serve only ta facus attention on the habit. For efficient treatment on a reflex basis, prescribe

Order from your pharmacist

Contains: Oleo Resin Capsicum, Alae, Benzain, Starax, Tolu Balsam, Soluble Pyroxylin and Alcahol 4.75%

BAN

ADVERTISED IN AMERICAN MEDICAL ASSOCIATION PUBLICATIONS

Professional samples available. WRITE TO:

PUREPAC CORPORATION
511 East 72nd Street • New York 21

DYE MEDICAL & OXYGEN SUPPLY COMPANY

OFFERS

The Newest in Oxygen Therapy Equipment

Exclusive Distributors for MSA Pneophore

Exclusive Distributors for Expendo Plastic Mask & Cannula

Distributors of Medicinal Gases to Hospitals

Quality, Promptness and Efficiency combined with the lowest prices to Doctors and patients in Phoenix

24 HOUR SERVICE

3332 W. McDowell Road
Phoenix, Arizona

Phone
AP 8-3531

"Every Need For the Sick Room"

Arizona Pharmaceutical Page

UNDOUBTEDLY, THE NINE-POINT PROGRAM, ISSUED BY DR. LOUIS H. BAUER, PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION, PROVIDES A WORKING PROGRAM, FOR YOUR ASSOCIATION, OF GREAT MERIT.

FROM THE STANDPOINT OF PHARMACISTS, WHO ARE IN CLOSE, DAILY CONTACT WITH THEIR CUSTOMERS, (YOUR PATIENTS) ITEM SIX OF THE PROGRAM PRESENTS A REAL CHALLENGE. IT IS AS FOLLOWS:

"(6) CLEAN OUR OWN HOUSE, BY DISCIPLINING THOSE PHYSICIANS WHO ARE TARNISHING THE REPUTATION OF THE WHOLE PROFESSION BY THEIR UNETHICAL ACTS OF OVERCHARGING, ACCEPTING KICKBACKS, AND MAKING COMMERCIAL ARRANGEMENTS WITH PHARMACISTS."

SINCE WE PHARMACISTS ARE MENTIONED IN THIS PORTION OF THE PROGRAM AND, SINCE BOTH PROFESSIONS HAVE HAD CONSIDERABLE UNFAVORABLE PUBLICITY, RELATIVE TO THE THINGS COVERED IN IT, IN SUCH PUBLICATIONS AS THE NEW YORK TIMES AND OTHER PAPERS IN THE EASTERN AREA, WE ASKED THE CHAIRMAN OF THE GRIEVANCE COMMITTEE OF THE ARIZONA PHARMACEUTICAL ASSOCIATION, MR. ELI SCHLOSSBERG, TO WRITE US AN ARTICLE FOR PUBLICATION ON THIS PAGE. WE BELIEVE MR. SCHLOSSBERG HAS ATTEMPTED TO GIVE YOU A BRIEF RESUME OF SOME OF THE COMPLAINTS THAT HAVE COME TO THE ATTENTION OF HIS COMMITTEE.

WHO FILLS THE PRESCRIPTION?

SICK PEOPLE NEED THE SUSTAINING COMFORT OF FAITH, LOYALTY, AND RELIANCE IN THOSE WHO SERVE THEM. DIAGNOSIS AND DRUGS ARE NOT ALWAYS THE ANSWER TO DISEASE. THE PATIENT WITH FAITH IN THE ABILITY OF HIS PHYSICIAN IS WELL ON HIS WAY TO RECOVERY. THIS RELIANCE ON HIS DOCTOR IS AN IMPORTANT INTANGIBLE THAT DOESN'T APPEAR ON THE PRESCRIPTION DESCRIBING THE CONCRETE CURING MATERIAL.

PHYSICIANS UNDERSTAND THE TRUST OF PATIENTS IN THEIR PROFESSIONAL ACUMEN TO WRITE THE RIGHT WORDS ON A PRESCRIPTION. HOW MANY REALIZE THE SAME PATIENT HAS A SIMILAR RELIANCE UPON THE MAN WHO TRANSLATES THOSE WORDS INTO THE ACTUAL MEDICINE THAT MAKES HIM WELL?

FAITH IN *ONE* PHYSICIAN SELECTED FROM MANY HAS ITS COUNTERPART ON ANOTHER LEVEL IN THE FAITH IN *ONE* PHARMACIST CHOSEN FROM MANY. WE MUST RESPECT THE PATIENT'S DECISION IN EACH INSTANCE.

YET TODAY, THERE ARE PHYSICIANS WHO ARBITRARILY ARRANGE TO HAVE PRESCRIPTIONS FILLED AT A GIVEN PHARMACY WITHOUT CONSULTING THE PATIENT. FURTHERMORE, AT TIMES ACTUALLY INSISTING THAT THE PRESCRIPTION BE FILLED IN A STORE CONTRARY TO THE PATIENT'S EXPRESSED WISH. SUCH ACTION HAS NO LEGAL, ETHICAL OR MORAL SUPPORT.

AND IF YOU THINK ABOUT IT . . . IT'S UNDEMOCRATIC, BECAUSE IN OUR SYSTEM OF FREE ENTERPRISE, THE RIGHT TO CHOOSE A PHARMACIST – LIKE THE RIGHT TO A FREE CHOICE OF PHYSICIAN – IS STILL A CHERISHED POSSESSION. THE TEAMWORK SO ESSENTIAL TO RESTORING YOUR PATIENT'S HEALTH WILL FUNCTION BEST IF THE PATIENT MAKE HIS OWN DECISION RELATIVE TO THE SELECTION OF HIS PHYSICIAN AND HIS PHARMACIST.

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

Successor To

PATHOLOGICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. W. Watkins, M.D., Consultant Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

House Committee Seeks Clarification On VA Reorganization

The House Veterans Affairs Committee wants to get the facts on administration plans for reorganization of the Veterans Administration, particularly its medical and hospital programs. Chairman Edith Nourse Rogers decided to invite Budget Director Joseph Dodge to appear and tell what he knows of reports that VA's health operations might be shifted to Federal Security Agency in the event FSA is elevated to cabinet status. The heads of three veterans organizations, testifying before the House Committee earlier in the week, made it clear they were definitely opposed to taking medical and hospital operations away from VA. They said they preferred the reorganization plan of Veterans Administrator Carl R. Gray, Jr. (see Capitol Clinic, Vol. 3, No. 48). National commanders of the American Legion, Amvets and Disabled American Veterans testified. (The administration has not indicated that VA would be included in the proposed Department of Health and Security.)

A.M.A. Washington Letter

DISEASES OF THE CHEST

Sixth annual postgraduate course on Diseases of the Chest, sponsored by Council on Postgraduate Medical Education of the American College of Chest Physicians and Laennec Society of Philadelphia, held at Bellevue-Stratford Hotel, Philadelphia, Pennsylvania, March 23-27, 1953.

Postgraduate course committee: Chevalier L. Jackson, M.D., Chairman; Charles P. Bailey, M.D., Katherine R. Boucot, M.D., Robert V. Cohen, M.D., Leon H. Collins, Jr., M.D., David A. Cooper, M.D., Burgess L. Gordon, M.D., Esmond R. Long, M.D., Charles M. Norris, M.D., Martin J. Sokoloff, M.D., Julius L. Wilson, M.D., and J. Winthrop Peabody, M.D., ex-officio.

Registered (Arizona) Pharmacist

Wants Hospital Work, or will finance, Install and operate Ethical Prescription Shop In Clinic, Hospital or Physicians' Group.

FOR INFORMATION WRITE
Arizona Medicine Journal
424 Heard Bldg.
112 N. Central Avenue
Phoenix, Arizona

Woman's AUXILIARY

ANNUAL CONVENTION

The Committee for the Twenty-Third Annual Convention of the Woman's Auxiliary to the Arizona Medical Association extends with pleasure an invitation to all doctors' wives to attend the sessions to be held in Tucson, April 26th, 27th, 28th, and 29th. Headquarters are at the Pioneer Hotel. A brunch, April 28th, at the Santa Rita Hotel and a luncheon, April 29th, at the El Conquistador Hotel have been arranged. Honored guest and speaker for the luncheon will be Mrs. Ralph Eusden, president of the Woman's Auxiliary to the American Medical Association.

Mrs. B. P. Storts, chairman
Tucson, Arizona
Mrs. Roy Hewitt, co-chairman
Tucson, Arizona

PROGRAM

The programs of the auxiliaries of the counties of each state will all be different, to meet their individual needs in relation to size and situation, but there are certain basic similarities and aims that should be seen in the programs of all the auxiliaries throughout the United States. We exist to help our husbands as physicians wives. To do this best, we must know each other, keep informed in many fields, and work together for good public relations, with the approval of the medical societies.

The national organization wants us to stress particularly that we are a friendly organization. This is easy in the small communities where there are few physicians, and where their wives automatically know each other, as well as most of the other people in town. In the counties where there are large cities, this is not always so simple. New physicians come to town each year, and the group is large to start with. If each member would constitute herself a committee of one to bring a new person to one meeting during the year, or make a special effort to know a new member, even if it is only by chatting with her for five minutes before dashing over to that friend she hasn't seen for two months, that particular auxiliary will soon get a name for being friendly.

Keeping informed can cover many fields. Perhaps we have done most, in the past few years, by working with our legislative chairman in the fight against socialized medicine. We must still keep a weather eye out for socialization in disguised forms, and the legislative bulletin published by the A.M.A. helps us to do this. If you do not have a legislative chairman, send in the name of your program chairman, so that she may receive this important bulletin for your community.

This brings us to publications. Do read them. There is the Bulletin, our national magazine; the Arizona Medicine Journal, that gives you auxiliary news on the state level; and *Today's Health* officially approved by the medical profession for lay people. From these you will get much valuable information, and through reading them you will feel you are part of a much larger organization than just the local county or even state society. Do use some of the materials that the A.M.A. has compiled for you at considerable expense. In fact, a lot of our membership dollars go into the movies, recordings, and pamphlets, many of which cost but a dollar or two plus postage to receive, and many of which are very well done.

Do keep informed of what is going on in Civilian Defense and Red Cross in your community, even if you do not have a civilian defense chairman. Should a disaster of any sort occur in your area, both these organizations will immediately call upon the physicians. This is one time where, as nurses, first aiders, motor corps drivers, etc. we can be of real practical help to our husbands. Besides being a practical and commonsense thing to do, it is also wonderful public relations.

This is not all. The auxiliary should also be informed of the health services in its community. What public health services are there? Don't forget the voluntary health plans like the Blue Cross and Blue Shield. There are others besides these. Do you know which one your medical society recommends? Several lay people have asked me about this in my community. Perhaps your town or county needs a visiting nurse service, or your county hospital needs an auxiliary, or the children in your schools need volunteers to help give the hearing tests. If you know what is being done, you will also know

what is being omitted, and perhaps your auxiliary can provide a really needed service.

Everything we do as a auxiliary, or as a physician's wife, is either good or bad public relations for our husbands and for the medical profession. The doctors themselves give much free time and care to the public, but, because they shun publicity, many of their services go unrecognized. Any such services that the auxiliary can do show the public that physicians and their families are interested in the health of the community.

One of the big things that the auxiliaries in Arizona have done is their nurse recruitment program, and the setting up of the scholarship fund for nurses training. This is helping to meet the very real need for nurses in the state. What is more, the fund makes it possible to recruit nurses from the smallest communities, if they meet the requirements, and see that they have a chance to get the proper training.

If you have a radio station in your town that is interested in doing public service programs, you can do much to further public relations without having to learn to write radio scripts. The A.M.A. has thirty different series of electrical transcriptions. Each transcription is fifteen minutes long, and each series runs for thirteen weeks. They are absolutely free, and those that I have heard have been outstanding. They seem to have been very well received in the communities where they have been used. Now the A.M.A. is putting out several series for TV, and there are some excellent films which could be presented at auxiliary meetings or at the P.T.A. In fact, it was interesting to note that some, which cost only a dollar or two as a service charge, are used in the schools of Pima County.

Situations which lend themselves to promoting good public relations are so numerous and varied that it takes only an alert public relations chairman and program chairman to find them throughout the year.

If there is any way that your state program chairman can help you, just write to her, and she will do her very best to provide either materials or information. If the four closely related chairmen will cooperate: Civilian Defense, Public Relations, Legislative and Program, you should have a wonderful and stimulating year.

Mrs. Hugh Thompson,
2nd Vice President
Tucson, Arizona

ARCHIVES

"To build on the foundation of yesterday
With the tools of today
The better Medical World of tomorrow."

There is much of wisdom and interest to be gleaned from the works and knowledge of those gone before us. Also, it is good to know our worthy deeds of today will become a record in the history of tomorrow. Such a record exists for the members of the State Medical Auxiliary of Arizona in the central office of the State Medical Association on the fifth floor of the Security Building in Phoenix. It is available to any Auxiliary member.

Some of its contents are the bulletins of the Auxiliary as far back as 1942, the Constitution and By-Laws, the Minutes of regular meetings and all important letters and correspondence; also the Presidents' reports and a report from each County President. There are scrap books with snap shots of annual meetings and interesting clippings and photos of our past leaders.

The newest addition has been a beautiful memorial book purchased by Mrs. Hamer while in Chicago attending the National Convention. It will contain the names of our deceased members.

Please enjoy the records and documents in our files for they represent much interesting work and are there for your convenience and pleasure. Your State Historian will be happy to help you at any time.

Mrs. C. Selby Mills
State Historian
Phoenix, Arizona

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics
We Specialize In Planter Box Materials

531 W. Thomas Road Phone CR 4-0211
Phoenix, Arizona

MORE BOOKINGS SEEN FOR "YOUR DOCTOR" FILM IN '53

More and more Americans will have an opportunity to see the RKO-Pathe film, "Your Doctor," during 1953. An estimated 12 million persons viewed the 15-minute movie-short in more than 2,000 commercial theaters across the nation in 1952.

After January 1, 16 mm. prints of the film will be available for showings to schools, service clubs, civic groups, industrial plants and special professional meetings. Produced by Louis de Rochemont in cooperation with the AMA, this film portrays the work of 35-year-old Dr. George Bond in his valley clinic in backwoods North Carolina.

The American Medical Association also has made arrangements to obtain prints for state and county society film libraries. Societies interested in purchasing a print at cost may write to the AMA Public Relations Department. Details on distribution methods will be made available later.

TB SYMPOSIUM FOR GP'S IN SARANAC LAKE NEXT SUMMER

The Second Annual Tuberculosis Symposium for General Practitioners will be held in Saranac Lake, N. Y. from July 13 through 17, 1953. It is approved by the American Academy of General Practice for 26 hours of formal credit for its members.

The Symposium is sponsored by the Saranac Lake Medical Society and the Adirondack Counties Chapter of the New York State Academy of General Practice. The registration fee is $40 for A. A. G. P. members and $50 for non-members. Registration is limited to 100 doctors.

Many physicians who attended last year's symposium brought their families to Saranac Lake. So that families might have use of the car to enjoy the many recreational facilities of the Adirondack Mountains, free bus transportation was provided for physicians from Saranac Lake to the various meeting places. This practice will be followed again this year.

These symposia are the result of many requests, during the last few years, from the General Practitioners for a postgraduate course on pulmonary tuberculosis designed for them and presented over a period short enough so that they might readily attend. The 1953 Symposium has been planned to meet those needs and to cover all important aspects of pulmonary tuberculosis from the General Practitioner's point of view.

Many of the sessions are informal panel discussions with ample opportunities for questions from the audience.

The Symposium will be held in various sanatoria and laboratories in the Saranac Lake area. Morning sessions will be from 8:30 to 12:30 and afternoon sessions from 2:00 to 3:30 (Monday, Wednesday, and Thursday). There will be elective sessions on Tuesday and Friday afternoons. Physicians desiring to make patient rounds will have that opportunity each afternoon at 4:00. On Monday, July 13th there will be a dinner for physicians attending the course, their families and the faculty.

The speakers and panel members at the Tuberculosis Symposium will include physicians, surgeons and scientists from Saranac Lake and surrounding areas.

Complete information concerning this program can be obtained by writing: Richard P. Bellaire, M.D., Tuberculosis Symposium for General Practitioners, P. O. Box 707, Saranac Lake, New York.

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.
223 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

Make Plans Now to Attend the

Annual Meeting Of Arizona Medical Association

Pioneer Hotel, Tucson, Arizona

April 26, 27, 28, 29

(Scientific Sessions April 27, 28 and 29.)

1. *Paul C. Aebersold, Ph.D.*, Director Isotopes Division, U. S. Atomic Energy Commission, Oak Ridge, Tennessee.
2. *Mr. Mac F. Cahal*, Executive Secretary, American Academy of General Practice.
3. *Herbert H. Davis, M.D.*, Professor of Surgery, University of Nebraska.
4. *Samuel M. Feinberg, M.D.*, Professor of Medicine, Director of Allergy, Northwestern University.
5. *Ross Golden, M.D.*, Professor of Radiology, Presbyterian Hospital, New York.
6. *John V. Goode, M.D.*, Professor of Surgery, Southwestern Medical School, Dallas, Texas.
7. *John B. Grow, M.D.*, Ass't Professor of Surgery, University of Colorado Medical School, Denver.
8. *H. R. McCarroll, M.D.*, Ass't. Professor of Orthopedic Surgery, Washington University, St. Louis.
9. *Edmund W. Overstreet, M.D.*, Ass't. Professor Obs. and Gyn., University of California Medical School, San Francisco.
10. *Peter F. Salisbury, M.D.*, Research Dep't., Good Samaritan Hospital, Los Angeles (Artificial Kidney).
11. *Charles Slocumb, M.D.*, Mayo Clinic, Rochester, Minnesota (co-winner Nobel Prize, Cortisone).
12. *Travis Winsor, M.D.*, Ass't. Clinical Professor of Medicine, U. S. C. Medical School of Los Angeles

(Titles of all papers to be announced later. Part of above list invited by specialty groups.)

PRESIDENT-ELECT'S BROTHER HITS SOCIALIZED MEDICINE

Speaking in New York recently at a dinner of the American Heart Association, Dr. Milton S. Eisenhower, president of Pennsylvania State College, and brother of the President-Elect, vigorously attacked socialized medicine and avowed his "passionate" belief in private enterprise.

He told his audience that "the socialization of medicine would be a fatal step that would lead to the loss of economic freedom, and, therefore, to the loss of political and personal freedom, too." A.M.A. Secretary's Letter

FOURTH SUPPLEMENT TO MOTION PICTURE REVIEWS NOW AVAILABLE

The Committee on Medical Motion Pictures of the A.M.A. has completed the fourth supplement to the booklet entitled "Reviews of Medical Motion Pictures." It contains all the film reviews published in The Journal, from January to December, 1952.

The purpose of the reviews is to provide a brief description and evaluation of motion pictures which are available to the medical profession. Each film is reviewed by competent authorities.

One copy has been mailed to the secretary of each state medical society. Copies are available to county medical societies on request from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

PROVIDE INFO ON CIVIL DEFENSE PREPAREDNESS

The Council on National Emergency Medical Service has just finished compilation of information by states reflecting the status of medical civil defense preparedness as of July 1, 1952. Copies are available upon request.

A.M.A. Secretary's Letter

HOUSE ACTION RELAYED TO STATES

Letters will go out very shortly to secretaries of state medical societies, calling attention to certain actions taken by the House of Delegates at the Denver session in December.

The house adopted four recommendations contained in Dr. Louis H. Bauer's presidential address. These recommendations, to be relayed to secretaries of state medical societies by letter, were:

"1. That this House of Delegates urge our constituent state associations to be adamant in disciplining unethical members;

"2. That it urge our component county societies to establish more rigid ethical requirements for membership;

"3. That it urge all medical schools to give lectures on medical ethics and medical traditions (the chapters of the Student American Medical Association can be potent factors in inculcating the embryo physician in medical ethics);

"4. That the House of Delegates go on record as thoroughly disapproving any business arrangements between pharmacists and physicians such as was unearthed lately in the Greater New York area."

A.M.A. Secretary's Letter

ASK HELP ON A TOUGH JOB

Dr. Louis A. Buie, Rochester, Minn., and his Council on Constitution and By-Laws are facing a tough and monumental task: that of studying and evaluating the Principles of Medical Ethics of the American Medical Association with a view to recommending changes that will clarify existing misunderstandings.

This is a tremendous job and can hardly be accomplished without the help and cooperation of every one who has a constructive suggestion to make.

Dr. Buie, who is chairman of the council, has asked Dr. Lull to seek the help of each member of the House of Delegates, states and county medical society officers, and others to make specific suggestions for improvements of the Principles or, as one council member put it, "forever hold your peace."

The most controversial sections of the Principles are Section 4 on Advertising, Section 5 on Publicity, and Section 6 on Patents, Commissions, Rebates and Secret Remedies. All of these sections are contained in Chapter 1.

Please review these sections, and any others you think should be amended, and send your amendments, written out specifically as you propose them, to George F. Lull, M.D., 535 N. Dearborn St., Chicago 10, Ill., who will transmit the suggestions to Dr. Buie.

A.M.A. Secretary's Letter

SOUTHWEST SURGICAL CONGRESS

We are pleased to announce that the Fifth Annual Meeting of the Southwestern Surgical Congress will be held on the dates of September 21, 22 and 23, 1953, at the Hotel Utah, Salt Lake City, Utah.

1953 Officers of the Congress are as follows:

Louis P. Good, M.D., Texarkana, Arkansas—President

Howard E. Snyder, M.D., Winfield, Kansas—Vice-President

Philip B. Price, M.D. Salt Lake City, Utah—President-Elect

Charles R. Rountree, M.D., Oklahoma City, Oklahoma—Secretary-Treasurer

The American Surgeon (Official Journal of the Southeastern and Southwestern Surgical Congresses) is now being published by the Williams & Wilkins Company, Baltimore, Maryland. (Thomas G. Orr, M.D., Kansas City, Kansas—Editor).

The Central Office of the Congress is located at 1227 Classen Drive, Oklahoma City 3, Oklahoma. Any inquiries concerning meetings of the Congress may be directed to this office.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 15th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 15th OF THE MONTH.

Material arriving after that date will be published the following month.

U. C. MEDICAL LIBRARY
APR 14 1953



Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA

ANNUAL
APRIL 26, 27, 28, 29

MEETING
TUCSON, ARIZONA



VOL. 10, No. 4 • APRIL, 1943 • TABLE OF CONTENTS — PAGE V

unusually effective in infections

of the gastrointestinal tract.



Chloromycetin is a notably effective, w

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 4 APRIL, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

THE USE OF CORTISONE IN A PATIENT WITH ACTIVE PULMONARY TUBERCULOSIS 121
Jason E. Farber, M.D. and Joseph Ross, M.D., Oakland, California
THE PROPER TREATMENT OF VARICOCELE 123
Robert A. Price, M.D., Phoenix, Arizona
DUTIES OF PHYSICIANS TO EACH OTHER 125
W. Warner Watkins, M.D., Phoenix, Arizona

BASIC SCIENCE SEMINAR

FLUID AND ELECTROLYTE BALANCE 130
Roman Barroso Garcia, M.D., Tucson, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 136

THE PRESIDENT'S PAGE

CONVENTION TIME AGAIN 148
Thomas H. Bate, M.D., Phoenix, Arizona

EDITORIAL

DANGER FROM ASTEROL 149

LETTER TO THE EDITOR

ON THE SAFEST OF SUPERFICIAL LOW-VOLTAGE X-RAY THERAPY 149

ITEMS OF INTEREST

LOOK AT THE FINGERNAILS 150
EXPERT TESTIMONY 150
HEART ACCIDENTS AND COMPENSATION 150

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS. 151
Guillermo Osler, M.D.
LOGIC AND LANGUAGE IN MEDICAL WRITING 146
YOUR GROUP ACCIDENT AND HEALTH PLAN 155
PIMA COUNTY MEDICAL SOCIETY 155
OBSOLETE DIATHERMY APPARATUS 155
PRESCRIPTION FACTS FOR YOUR INFORMATION 156
Arizona Pharmaceutical Association
A.M.A. REVISES THE "ESSENTIALS OF AN APPROVED INTERNSHIP" 157
A.M.A. TO CONTINUE STUDY OF DOCTOR DRAFT LAW 158
INSIDIOUS STRANGLEHOLD ON MEDICAL FREEDOM 158

WOMAN'S AUXILIARY

NURSES RECRUITMENT 160
Mrs. Roy Hewitt, State Chairman, Health Education, Tucson, Arizona
AN INVITATION TO PHYSICIAN'S WIVES 160
Mrs. Ruth E. Schoffman, State President Woman's Auxiliary, Phoenix, Arizona

DIRECTORY

SANATORIUM DIRECTORY XXI
DRUGGISTS DIRECTORY XXV
PHYSICIANS' DIRECTORY XXX

Published monthly by the Arizona Medical Association. Business office at 426 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Thomas H. Bate, M.D. ..... President
15 East Monroe, Phoenix, Arizona
Edward M. Hayden, M.D. ..... President-Elect
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... Vice-President
1313 N. 2nd Street, Phoenix, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Harry E. Thompson, M.D. ..... Speaker of House
435 N. Tucson Boulevard, Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
15 East Monroe, Phoenix, Arizona
Kent Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Donald E. Nelson, M.D. ..... Southeastern District
509 — 5th Avenue, Safford, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 — 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Harry T. Southworth, M.D. ..... Past President
P. O. Box 788, Prescott, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Hilary D. Ketcherside, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Otto E. Utzinger, M. D., Ray.

HISTORY & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; W. R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Myron G. Wright, M. D., Winslow; Leo Schnur, M. D., Grand Canyon.

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford.

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Guy B. Atonna, M. D., Douglas; Joseph Bank, M. D., Phoenix; David E. Engle, M. D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1952 - 1953

President ..... Mrs. W. F. Schoffman
36 North Country Club Drive, Phoenix
President Elect ..... Mrs. George S. Enfield
335 West Cambridge, Phoenix
Vice-Pres. 1st (organization) ..... Mrs. Brick Storts
El Encanto Estates, Tucson
Vice-Pres. 2nd (Program) ..... Mrs. Hugh Thompson
135 Palomar Drive, Tucson
Treasurer ..... Mrs. R. Lee Foster
2215 North 11th Avenue, Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. L. L. Tuveson
346 West LaMar Rd., Phoenix
Director 1 Yr. ..... Mrs. J. H. Allen
829 Country Club Drive, Prescott
Director 1 Yr. ..... Mrs. R. W. Rudolph
3935 E. Miner, Tucson
Director 2 Yr. ..... Mrs. T. C. Harper
175 South 3rd Street, Globe
National Representative ..... Mrs. Jesse D. Hamer
1819 North 11th Avenue, Phoenix
Bulletin ..... Mrs. Hiram Cochran
2716 East 4th St., Tucson
Civil Defense ..... Mrs. Harry Cumming
517 W. Rose Lane, Phoenix
Finance ..... Mrs. Paul S. Causey
38 West Camelback Rd., Phoenix
Health Education ..... Mrs. Roy E. Hewitt
130 Camino Miramonte, Tucson
Historian ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Legislation ..... Mrs. George A. Williamson
537 West Rose Lane, Phoenix
Parliamentarian ..... Mrs. V. G. Presson
1317 North Stone, Tucson
Publicity ..... Mrs. John R. Green
2221 North 40th Street, Phoenix
Public Relations ..... Mrs. J. K. Bennett
2325 East Waverly, Tucson
Revisions ..... Mrs. Delbert Secrist
2527 East 3rd St., Tucson
State Nurses Loan Fund ..... Mrs. Carlos C. Craig
727 Encanto Drive SE, Phoenix
Today's Health ..... Mrs. Paul Jarrett
501 East Pasadena, Phoenix
Nominating Chairman ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix

GILA COUNTY

President ..... Mrs. I. E. Harris
Box 1296, Miami
Vice-Pres. ..... Mrs. Nelson D. Brayton
823 Merritt, Miami
Sec.-Treas. ..... Mrs. Wm. E. Bishop
605 South 3rd Street, Globe

MARICOPA COUNTY

President ..... Mrs. Archie E. Cruthirds
60 E. Country Club Dr., Phoenix
Pres.-Elect ..... Mrs. Paul Jarrett
501 E. Pasadena, Phoenix
1st Vice-Pres. ..... Mrs. Robert Cummings
5830 Arcadia Lane, Phoenix
2nd Vice-Pres. ..... Mrs. C. Selby Mills
148 West Rose Lane, Phoenix
Rec.-Sec. ..... Mrs. A. I. Ramenofsky
916 E. Cambridge, Phoenix
Cor.-Rec. ..... Mrs. Robert Price
335 West Wilshire, Phoenix
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 17th Street, Phoenix

GRAHAM COUNTY

President ..... Mrs. Frederick W. Knight
Safford
Vice-Pres. ..... Mrs. Noel Grey Smith
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hollis H. Brainard
328 N. Country Club Rd., Tucson
Pres-Elect ..... Mrs. Hugh C. Thompson
135 Palomar Drive, Tucson
1st Vice-Pres. ..... Mrs. Darwin Neubauer
3017 E. Loretta Drive, Tucson
2nd Vice-Pres. ..... Mrs. Jackson Pyre
4141 East Killmer, Tucson
Rec.-Sec. ..... Mrs. Phillip G. Derickson
2841 E. Exeter Dr., Tucson
Cor.-Sec. ..... Mrs. David E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th Street, Tucson

PINAL COUNTY

President ..... Mrs. J. B. Tucker
Box 1042. Casa Grande
Vice-Pres. ..... Mrs. G. H. Walker
Box 1225, Coolidge
Sec.-Treas. ..... Mrs. R. Z. Collings
Box 475, Casa Grande

YUMA COUNTY

President ..... Mrs. Charles S. Powell
698 Ninth Avenue, Yuma
Vice-Pres. ..... Mrs. John F. Stanley
201 1st Ave., Yuma
Sec.-Treas. ..... Mrs. John J. Kloby
Box 1590, Yuma

YAVAPAI COUNTY

President ..... Mrs. Joseph P. McNally
208 Grove Ave., Prescott
Vice-Pres. ..... Mrs. M. W. Phillips
829 Flora Ave., Prescott
Secretary ..... Mrs. E. C. Geever
Whipple Barracks, Whipple, Arizona
Treasurer ..... Mrs. Wm. R. Shepard
Hassayampa Country Club, Prescott

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 4 APRIL, 1953

Original ARTICLES

THE USE OF CORTISONE IN A PATIENT WITH ACTIVE PULMONARY TUBERCULOSIS

Jason E. Farber, M.D.(1,2) and Joseph Ross, M.D.(1,2)
Oakland, California

There is a definite need for more information about the use of cortisone in the treatment of tuberculosis. Reports to date are inadequate as to the value, the proper administration, and the dangers in using the hormone. In the laboratory animal with tuberculosis, the effects of cortisone seem to be uniformly detrimental (1,2,3). In human beings with acute tuberculosis, LeMaistre et al.(4) obtained rapid clinical improvement with cortisone. This was associated with roentgenographic clearing of pulmonary lesions. On termination of treatment there was a swift return of signs and symptoms of acute illness. Thorn(4) found definite benefit from the drug in patients with Addison's disease presumably due to tuberculosis; his patients received streptomycin concurrently. This was also the experience of Browne(4). Kinsell(5) cites the value of ACTH and cortisone when combined with intensive chemotherapy in the treatment of tuberculous meningitis. It is his opinion that this combined type of therapy will eventually have a place in the treatment of tuberculosis.

Contrariwise, there is a growing number of reports indicating the dangers in the use of cortisone in human tuberculosis. One report(6) of 20 collected cases revealed unfavorable end results after initial symptomatic improvement. The reports of Hollander(4), Fred(7), Popp(8) and Kleinschmidt(9) and King(10) also demonstrate the hazards in the use of cortisone in tuberculosis.

1. Visiting Physicians, Chest Service, Highland Alameda County Hospital, Oakland, California.
2. Office Address, 1916 Franklin Street, Oakland 12, California.

Case Report

A seventy-four year old woman became acutely ill with dyspnoea, a hacking cough, fever and prostration.

She was known to have long standing, active, fibroulcerative, pulmonary tuberculosis. Her sputum was persistently positive. She had received prolonged bed rest, pneumoperitoneum and chemotherapy (streptomycin and PAS) without apparent benefit. Apart from this, she had been under treatment for congestive heart failure and a recurrent cardiac arrhythmia. She was being maintained on a program which included a salt poor diet, pronestyl, mercuhydrin, vitamin supplements and sedation.

Physical examination revealed an acutely ill, poorly nourished, elderly woman. She was dyspnoeic. She coughed repeatedly, raising large amounts of sticky, grayish, purulent sputum. Her face appeared flushed and cyanotic. Her tongue was swollen, red, dry and coated. Her trachea was in the midline. Her chest was resonant; harsh breath sounds and coarse rales were heard throughout both sides. The heart tones were of poor quality, but regular and rapid. The liver was barely palpable and there was moderate sacral and tibial edema.

The temperature was 102.4°F., and the respirations, twenty-eight per minute. The blood pressure was 150 mm. Hg. systolic and 100 mm. Hg. diastolic.

The patient was given combined penicillin and streptomycin and crude liver extract intramuscularly. Some hours later she complained

that "her heart was running away" and she suddenly became orthopnoeic. Her heart rate was more than 150 per minute. This bout of paroxysmal supraventricular tachycardia was terminated after several hours by pronestyl and demerol given parenterally. Repeated emesis followed this. In the next 24 hours her condition continued to deteriorate. She showed anxiety and restlessness. Her lips became swollen, dry and fissured. She seemed to have difficulty raising her sputum. Her cyanosis deepened. She became disoriented and incoherent. She appeared to be in extremis.

Because of this critical situation the patient was given 100 mg. of cortisone intramuscularly. This was repeated in one hour and then every four hours. The response was remarkable. There was rapid alleviation of the acute symptoms. Her breathing eased, the cyanosis disappeared, her mental clarity returned. The temperature dropped, and her pulse rate slowed. She accepted food. Cortisone was continued for ten days, the total dose being 2400 mg. Oral therapy meanwhile replaced the injectable preparation. Streptomycin and penicillin were given in conjunction with the cortisone.

Convalescence was uneventful, and complete recovery from the acute respiratory illness followed. Since then, the patients general condition has remained reasonably good. There was no anatomical change in the pulmonary tuberculosis as shown by roentgenograms of the chest taken just before the acute illness and one, six, eleven and fourteen months after cortisone was given. Her sputum remains positive.

Comment

An elderly patient under treatment for active pulmonary tuberculosis and congestive heart failure developed an acute suppurative bronchitis and bronchiolitis. This was characterized by prostration, dyspnoea, cyanosis, tachycardia, cough, and considerable sticky purulent sputum. She was febrile and toxic. She developed a glossitis and cheilitis, then toxic cerebral symptoms (disorientation, delerium). In spite of vigorous antibiotic and supportive therapy her condition rapidly became worse. Because a fatal outcome seemed imminent, the patient was started on a program of cortisone therapy. This was given with some trepidation since the few advance reports concerning the use of cortisone in tuberculosis in March of 1951 were discouraging. However, antibiotic therapy was given concurrently. This included a gram of dihydrostreptomycin daily. As noted above, the results of cortisone therapy were miraculous. Within hours, all signs and symptoms of her disease diminished. Recovery from the acute illness followed with certainty. Of further importance is the roentgenological evidence that there was no anatomical change in the pulmonary tuberculosis. Chest films taken one, six, eleven and fourteen months after the administration of cortisone show no change in the fibro-cavitary lesion in the left upper lobe or in the fibrotic lesions in the right upper lobe. Sputum, however, remains positive.

Factors which might have been operative in reducing the danger in the use of cortisone in this case were 1) combination of streptomycin with the cortisone 2) the type of tuberculosis, viz., chronic fibroulcerative rather than acute exudative disease as is produced in experimental animals.

SUMMARY

A seventy-four year old woman with a chronic, active, fibroulcerative pulmonary tuberculosis and a failing heart developed an acute suppurative bronchitis and bronchiolitis. In spite of antibiotic and supportive therapy, she rapidly progressed downhill and became semimoribund. Cortisone was administered and was followed by dramatic recovery from the acute illness. There was no roentgenographic change in the tuberculosis immediately or within fourteen months after the use of the cortisone.

ADDENDUM

Since the completion of this paper the Committee on Therapy of the American Trudeau Society submitted its preliminary report on the Effect of Cortisone and/or Corticotropin on Tuberculous Infection in Man. (Am.Rev.Tuberc., 1952, 66, 254.) From an analysis of 81 treated cases they conclude that these hormones are potentially hazardous in active tuberculosis and at this time should not be used in the treatment of the disease. They urge extreme caution in its use in inactive tuberculosis. If the hormones are used for nontuberculous conditions in the patient with active tuberculosis, combined therapy with streptomycin and PAS is recommended.

REFERENCES

(1) Bloch, R. G., Vennesland, K., and Gurney, C.: The Effect of Cortisone on Tuberculosis in the Guinea Pig, J. Lab. and Clin. Med., 1951, 38, 133.

(2) Michael, M. Jr., Cummings, Wm., and Bloom W. L.: Course of Experimental Tuberculosis in the Albino Rat as Influenced by Cortisone, Proc. Soc. Exper. Biol. & Med., 1950, 75, 613.

(3) Hart, P. D., and Rees, R. J.: Enhancing Effect of Cortisone on Tuberculosis in the Mouse, Lancet, 1950, 2, 391.

(4) LeMaistre C. A., Tompsett, R., and Muschenheim, C.: Effects of ACTH and Cortisone in Patients with Tuberculosis, Proc. of the Second Clinical ACTH Conference, Vol. 11, Therapeutics, 1951, 26, 363.

(5) Kinsell, L. W.: The Clinical Application of Pituitary Adrenocorticotropic and Adrenal Steroid Hormones, Ann. Int. Med., 1951, 35, 615.

(6) Chemotherapy of Tuberculosis, Report of Tenth Veterans Administration Army-Navy Conference, J.A.M.A., 1951, 147, 253.

(7) Fred, L., Levin, M. H., and Rivo, J. B.: Development of Active Tuberculosis During ACTH and Cortisone Therapy, J.A.M.A., 1951, 147, 242.

(8) Popp, C. G., Ottosen, P., and Brasher, C. A.: Cortisone and Pulmonary Tuberculosis, J.A.M.A., 1951, 147, 241.

(9) Kleinschmidt, D. F., and Johnston, J. J.: Miliary Tuberculosis in a Cortisone Treated Patient, Ann. Int. Med., 1951, 35, 694.

(10) King, E. A., Johnson, J. B., Batten, G. S., and Henry, W. L.: Report of a Case of Rapidly Progressive Tuberculosis Following Cortisone Therapy for Rheumatoid Arthritis, J.A.M.A., 1951, 147, 238.

THE PROPER TREATMENT OF VARICOCELE

Robert A. Price, M.D.
Phoenix, Arizona

A varicocele is an elongated, tortuous dilatation of the veins of the pampiniform plexus, frequently desribed as varicose veins of the scrotum. It is a common defect of the male anatomy, but one that is often improperly handled by many physicians. This situation probably exists because our textbooks still lag years behind the advancements in therapy.

The exact incidence of varicocele is uncertain, but is larger than most of us realize. Doctors doing routine physical examinations on military or industrial personnel for the first time are often surprised at the number of men showing this defect. In one group(1) of 1500 army age men 16.5% were found to have varicoceles. Of this number 37 men had distressing or disabling symptoms, 2.5% of the total examined.

A varicocele is caused by inadequate drainage of the left internal spermatic vein into the renal vein. At times this is caused by obstruction of the area by a renal tumor, a massive hydronephrosis or a peri-renal mass. In most instances, however, it is believed that this condition is caused by the emptying of the internal spermatic vein into the renal vein at right angles. This is not usually the case on the right side where the vein empties obliquely into the inferior vena cava. Therefore, varicocele is almost always found on the left side. Compression of the internal spermatic vein between the aorta and the origin of the superior mesenteric artery is believed by some investigators to be a contributory cause(2). Post-mortem studies have demonstrated the absence or incompetency of the valves of the internal spermatic vein in most cases of varicocele.

When symptoms occur in those who have a varicocele, they consist of a feeling of heaviness in the testicle or a dull drawing sensation in the groin and scrotum. At times the size of the varicocele is such that the weight of the mass of veins is actually disabling and some relief is imperative. At this point it is well to realize that the symptoms of the patient do not always go hand in hand with the size of the varicocele. A large varicocele may be quite symptomless, while small ones may disturb a maladjusted nervous person to a very marked degree. In some cases varicocele is associated with inguinal hernia and sharp, shooting inguinal pains or symptoms of strangulation may occur. In one series(4) of 145 patients with symptomatic varicocele, 25% were found to have an associated hernia. Conversely, of 102 patients operated for left inguinal hernia, 14% had a varicocele.

TREATMENT

The vast majority of varicocele cases require no treatment because they have no symptoms. If the condition is of recent development and yet is symptomless, the patient should have a complete genito-urinary investigation to rule out the presence of kidney pathology. 9% of left-sided kidney tumors had a recent varicocele according to one investigator.

In the group of patients where the varicocele is causing some minor discomfort, treatment by reassurance and possibly the wearing of a scrotal suspensory is indicated. These measures control most cases and further therapy is unnecessary.

In those individuals where the discomfort is so great that suspension of the scrotal sac is not adequate, surgery must be considered.

VARICOCELECTOMY

The classic varicocelectomy described in most textbooks of surgery and urology consists of a high scrotal incision, exposure of the cord and excision of about 5 cm. of the dilated veins, care being taken to avoid damage to the artery of the vas deferens. The ligated ends of the cord are then securely approximated in order to elevate the dependent left testacle. Those of you who have attempted this procedure know that is is a difficult undertaking and realize that damage to

Read before the Arizona State Medical Association Annual Meeting, May 2, 1953.

the vas artery is a mishap that is not easily avoided.

The results of this type of varicocelectomy are riddled with complications. Atrophy of the testicle, hydrocele formation, post-operative hemorrhage, thrombosis of the remaining veins in the pampiniform plexus, failure to cure the varicocele, and the high frequency of wound infection because of the location of the incision, are all encountered. The exact incidence of these complications is not reported by most writers on the subject, but a common figure cited for atrophy of the testicle is 10%. Therefore, many surgeons have been reluctant to advise operation even in disabling cases of varicocele.

ANATOMY

If we understand the basic circulation of this region, a more anatomical procedure suggests itself. The pampiniform plexus of testicular and cord veins is drained by deep and superficial venous systems. The deep system is made up of the internal spermatic vein, the vein of the ductus deferens and the external spermatic veins. The first two mentioned anastamose with each other within the epididymis and testicle. The internal and external spermatic veins anastamose within the cord. The superficial system is composed of the superficial and deep epigastric veins, the superficial internal circumflex vein, the scrotal tributaries of the superficial and deep external pudendals, and the internal pudendal vein. All of these anastamose with each other and the external spermatic vein near the external inguinal ring within the cord.(2,3,4.)

This venous drainage system of the testicle was first described in 1918 by Ivanissevich.(5) At that time he recommended high intra-abdominal ligation of the internal spermatic vein as treatment of painful varicoceles. Others modified his suggestions and simplified the procedure, although this evolution has been slow and not well publicized. Only in recent years has this operation received attention in the United States.

LIGATION OF THE INTERNAL SPERMATIC VEIN

An incision is made as for a herniorrhaphy except that the length rarely needs to be more than 6 cm. If an unsuspected hernia is encountered, extension of the incision will be necessary. The aponeurosis of the external oblique muscle is incised down to or through the external inguinal ring, being carried laterally to exposed the abdominal inguinal ring. The cremasteric muscle and fascia are incised longitudinally at the proximal end of the inguinal canal, and the internal spermatic vein is dissected free for a distance of about 5 cm. The vein is securely ligated at the internal ring and at the distal portion of the dissection. The vein is excised between the ligatures, the proximal end being allowed to retract into the abdominal cavity. In some instances the internal spermatic vein is formed inside the abdominal inguinal ring and there are two or three large branches instead of a single vein in the cord at the lateral end of the inguinal canal. Each vein is ligated in such cases. The longitudinal incision in the cremasteric muscle and fascia is closed transversely with a running suture. The distal end of the ligated internal spermatic vein may be included in this closing stitch. Closure of the cord in this manner causes some elevation of the dependent left testicle.

Careful search of the cord for possible indirect herniation should be done in all cases. In such instances high ligation of the sac and repair of the posterior wall of the inguinal canal are necessary. In Table 1 the incidence of concurrent hernia and varicocele found by various investigators is recorded. Only the cases with hernia were treated surgically in the first series listed.

Postoperatively the patient should wear a scrotal support for about one week. There appears to be no contraindication to immediate ambulation in most of these cases. Hospitalization is usually unnecessary after three or four days in patients without hernia repairs.

Table 1. *Hernias Found With Varicocele*

Series	Cases	Hernias	%
Javert and Clark, 1944	145	37	25%
Riba, 1947	23	3	13%
Lewis, 1950	42	8	19%
Price, 1950	12	2	17%
TOTALS	222	50	22.5%

RESULTS

Although the basic ideas were expressed in 1918, this operation was not done to any appreciable extent in the United States until the latter portion of World War II when several series of cases were reported. The results are uniformly gratifying and are charted in Table 2. Of 177 cases so treated, 173 were cured. Lewis' three failures were attributed to neglect in ligating each vein passing through the internal abdominal ring. Two of these were cured by a second operation and he believes the third can

be cured by a repeated procedure. The unsatisfactory result obtained in one of the author's cases was probably caused by incomplete dissection. The patient hed previously undergone a left inguinal herioplasty and the cord was scarred to such an extent that the veins could not be accurately identified and dissected. This patient was not relieved of either the varicocele or his symtems of discomfort.

Table 2. Results of Ligation of Internal Spermatic Vein for Varicocele

Series	Cases Operated	Cases Cured	Surgical Failures
Javert and Clark, 1944	32	32	0
Riba, 1947	23	23	0
Palomo, 1949	40	40	0
Lewis, 1950	42	39	3
El-Sadr & Mina, 1950	28	28	0
Price, 1950	12	11	1
TOTALS	177	173	4

In most cases the varicocele is dramatically reduced in size within 72 hours. Within ten days it is imperceptible to inspection. The aching or dragging sensation that disturbed the patient pre-operatively has usually disappeared by the time the tenderness leaves the operative site.

The only complication reported in these series was the presence of transitory thrombosis in some of Palomo's cases. His technique varies somewhat from that described above which probably explains these minor complications.

CONCLUSIONS

The high incidence of postoperative complications previously seen following varicocelectomy has been eliminated by the surgical technique described. Surgeons no longer need to hesitate in advising surgical therapy in cases of symptomatic varicocele.

BIBLIOGRAPHY

1. Lewis, E. L., "The Ivanissevich Operation," J. Urol., 63: 165-167, Jan. 1950.
2. El-Sadr, A. R. and Mina, E., "Anatomical and Surgical Aspects in the operative Management of Varicocele," Urol. & Cutan. Review, 54: 257-262, May 1950.
3. Lewis, W. B., "Gray's Anatomy of the Human Body," 23rd ed., pp. 668-675. Philadelphia, 1936, Lea & Febiger.
4. Javert, C. T. and Clark, R. L., "A Combined Operation for Varicocele and Inguinal Hernia" S. G. & Co., 79:644-650, 1944.
5. Ivanissevich, O. and Gregorini, H., "A Uew Operation for Cure of Varicocele," Semana med., 25: 575, 1918.
6. Price R. A., "Surgical Treatment of Varicocele," Am. J. of Surg., 80: 330-331, Sept. 1950.
7. Palomo, A., "Radical Cure of Varicocele by a New Technique," J. Urol. 61:604-607, 1949.

DUTIES OF PHYSICIANS TO EACH OTHER

W. Warner Watkins, M.D., F.A.C.P., F.A.C.R.
Phoenix, Arizona

When requested to take part in this symposium, I was given an outline of the field to be covered by me, listing seven points. These looked vaguely familiar and further investigation showed these points to be the seven sections of Chapter III of the "Principles of Medical Ethics of the American Medical Association." It seems entirely superfluous to recount to this enlightened group the well known principles of medical ethics, to all of which you have subscribed, because to be a member of this staff you must be a member of the Maricopa County Medical Society and, ipso facto, a member of the American Medical Association, and must have given your assent to these "Principles."

The best course, therefore, would seem to be to take these seven sectional headings which have been assigned to me and discuss some interesting departures from the principles set forth, as they have been observed in this community during the past forty years.

1. *Duties of a Physician to Uphold the Honor of the Profession.* Section 1, Chapter III, reads in part:—

"The obligation assumed on entering the profession requires the physician to comport himself as a gentleman, and demands that he use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness."

It is an interesting speculation how many of the students in our medical schools, or practitioners who have graduated from them, chose the practice of medicine as a "vocation" as contrasted with a business or a socially approved means of livlihood. I was interviewed recently by a High School student who plans to study medicine; he came with a prepared list of questions, and among them was the rather searching one as to my motive for choosing this profession,—whether it was primarily to render service, for financial returns, or to gain social approval. The question is pertinent. The word "vocation" comes from the Latin "vocare," which means *to call.* It implies that the motivation for choosing the profession of medicine is a response above the animal level of satisfying the physical needs; it is a call from the needs which a person sees in the world about him, or a call from

(Read in Symposium on Medical Ethics, at Staff Meeting of Good Samaritan Hospital, Phoenix, Ariz., October 25, 1948.)

within coming from the higher levels of life,—the sense of values. Medicine therefore, is supposed to be a vocation or calling, as contrasted with a trade or business. It belongs to the useful professions and this sphere of usefulness every individual practitioner is obligated to extend and enlarge. My medical mentor, when I was a young doctor just starting practice in Phoenix, was Dr. Otto E. Plath; one of his somewhat facetious remarks was that you could always tell how bad a community is by the number of doctors, lawyers and preachers it has. The number of doctors is an index of the prevalence of disease, the number of lawyers indicates the amount of crime, and from the number of preachers you can estimate the number of sinners in the community. The rapid increase in our physicians would seem to indicate a growing community need in fighting or treating disease. To meet that need should be a doctor's first consideration.

2. *Medical Societies.*

"In order that the dignity and honor of the medical profession may be upheld, its standards exalted, its sphere or usefulness extended, and the advancement of medical science promoted, a physician should associate himself with medical societies and contribute his time, energy and means in order that these societies may represent the ideal of the profession."

Sounds like one of those statements to which we could all respond,—"Amen, pappy pass the biscuits." It would be interesting if we could take a poll on the motivation of our doctors in joining medical societies. How many members of this staff, for example, joined the county medical society because of these high sounding motives, or because county society membership is a prerequisite for staff membership, and staff membership is required before a doctor can bring his patients into the hospital. I well remember the scream of agony from one of our doctors when we jumped the county society dues from five dollars to ten dollars and the state association dues from three dollars to five dollars. This doctor was very fond of good cigars so I inquired how many of them he smoked a day and what they cost; he proudly boasted that he smoked only good cigars, not less than two for a quarter and he consumed from six to ten a day. So, I told him that for what he thus sent up in smoke in one month he could pay his dues in the county society, the state association and the Southwestern Association, and his subscription to the A.M.A. Journal. He stayed in the society, but not at the expense of his cigars. He still looked on society membership as a luxury and smoking as a necessity.

3. *Deportment.* This section of the Principles is almost entirely quoted from Hippocrates:—

"A physician should be an upright man, instructed in the art of healing. Consequently he must keep himself pure in character and conform to a high standard of morals, and must be diligent and conscientious in his studies. 'He must also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life."

You have to hand it to the Greeks. If Hippocrates said all that in Greek, it was a marvellous language. It all boils down to practicing the Golden Rule, after first being the kind of person who knows what the Golden Rule is and who wants to practice it. Much of the Golden Rule practice is on the same ethical level as was once voiced by my oldest grand-daughter, when she was six years old. After hearing the expression "forgive us our trespasses as we forgive those who trespass against us," in church, she wanted to know the meaning of this. Her mother explained that when a person injures us we must be nice to him, just as we want him to be nice to us under similar circumstances. The grand daughter took all this in and put her own interpretation on it; when she said her prayers that night, she said, "Dear God, when Peter throws a rock at me help me to be nice to him, so that when I throw rocks at him, he will be nice to me." Even if we have no higher standard of ethics than this, it would be quite an advance over the common practice of "doing unto others what you expect them to try to do to you, but do it first."

Under this section should come the matter of ethical deportment in consultations. I learned medical ethics the hard way when I located in Phoenix in 1907. Shortly after arriving here and before opening an office, I was called to see a lady living next door to my residence. It seemed to be an open and shut case of pneumonia and the family was so advised. Finding the case to be more serious than they first thought, the family decided they wanted a consultation and asked for one of the old timers in Phoenix. I

gladly consented and awaited my first contact with the local medical profession with pleasurable anticipation, which was soon rudely shattered. The older doctor came, made his examination and then sat down in the presence of the patient, the anxious family and me,—and gave his consultation opinion somewhat as follows:—"Dr. Watkins is a young doctor and doubtless is doing his best, according to the extent of his experience. However, after he has been in practice as long as I have, he will not mistake a case of typhoid fever for pneumonia. This lady has typhoid fever and should be so treated. If you want me for anything else, you know where to find me." Of course, the family very quickly were asking me to give up the case and allow the patient to be put in charge of this consultant. There was nothing else to do, but it was interesting that this case of typhoid fever, mistakenly diagnosed pneumonia by me, terminated by crisis inside of a week. Great was the skill of this doctor, in the eyes of the family! He could even shorten the slow lysis of typhoid fever into a crisis, very much resembling that of lobar pneumonia! He was on par with the doctor who, when confronted with a condition outside of his limited knowledge, would give the patient a drug to bring on convulsions,—because he was "hell on fits." Consultation technic has undergone considerable refinement in recent years. The crude procedure followed by the doctor in my first consultation experience came to be exceptional, and the grabbing of a case by a consultant came to be looked on as unethical. Years passed and specialization began to be popular in Phoenix. The consultants found themselves very much in demand as consultants and they finally saw the reason for this; at the first show of interest in a specialist by a patient, the doctor in charge would call the specialist in consultation, and that would stop him from taking the case as a private patient. This came to be so much the rule that the specialists went into a huddle and pushed through a resolution in the county medical society, removing the ethical prohibition against a consultant accepting the patient as a private case, after being in consultation on him. So, we went through another cycle until the rank and file of the medical practitioners suddenly realized what was being done to them, and they rose in righteous indignation and repealed this resolution. However, so far as I have observed, with this resolution in effect, or after its repeal, the practice of medicine has followed the individualistic ideas of the practitioners.

4. *Advertising.* This is the longest section in this Chapter, too long to quote and its ramifications are too many to discuss in the limited time available. A special paper could be devoted to this on some other occasion. I will quote only one sentence:—

"The most worthy and effective advertisement possible, even for a young physician, and especially with his brother practitioners, is the establishment of a well-merited reputation for professional ability and fidelity."

Some years ago, a doctor whom I had known for a long time, was thinking of moving from a distant city to Phoenix. He inquired of me which of three specialties offered the best prospects here,—physiotherapy, eye-ear-nose-throat, or obstetrics. The first thought was that he planned to start a clinic, but he stated that he was trying to select a specialty for his individual practice. Knowing him to be a general practitioner of mediocre ability, I then inquired where and when he had taken the special training which would entitle him to offer his services in any of these specialties. He said he had never had any special training but thought he could "get by" in any one of these. When he finally did locate in Phoenix, he announced himself as a specialist in industrial surgery,—still without any special training. This entering a specialty by proclamation, rather than by preparation, is a good text for a sermon on this whole matter of advertising. However we do not need to preach the sermon; it preaches itself.

5. *Fee Splitting.* Fee splitting or giving rebates to other doctors for referred work is regarded as unethical. The term "fee splitting" is a shibboleth which is used about as freely and carelessly as the word "Communism." When we do not like a man's attitude on a public question, it is very easy to say he is a Commist, or to say that a course of action with which we disagree, is Communism. We talk about fee splitting about as carelessly. About 25 years ago, when the staff was being organized at St. Joseph's Hospital and recognition by the College of Surgeons was sought, the question of fee splitting became important. To settle some of the questions raised, I, as secretary of the staff, submitted a lengthy inquiry to the College, outlining five hypothetical situations which were common practices in Phoenix. The College made reply,

the gist of which was that three of the situations outlined would be regarded by the College as fee splitting and that the other two would not. One of these latter two, not regarded by the College as fee splitting, was the collection by the hospital of fees for x-ray work or laboratory work, and the division of these fees with the radiologist or pathologist, on a percentage basis. The other practice which was considered by the College *not* to be fee splitting, was the financial arrangement which our Laboratory had with some doctors regarding payments for work done for those doctors. The College further stated the basis on which the question of fee splitting should be decided; this is,—whether any injustice is done to the patient. An investigation of the practices in Phoenix was also made a few years later by the Council on Medical Education and Hospitals of the A.M.A., when our hospitals applied for certification for intern training. Dr. Colwell, then Secretary of the Council, visited Phoenix, made his investigations in person, and arrived at the same conclusions as the College of Surgeons.

Some interesting situations have been observed in Phoenix in connection with fee splitting, in bygone years. One of the most interesting reactions to this question of fee splitting was that of one of the best known and highly respected surgeons of Phoenix, now deceased. When the College of Surgeons was organized, no one questioned his eligibility for affiliation. However, he refused to make application, frankly stating that he would not take the pledge to refrain from fee splitting. He said his practice had been built on fee splitting, that he believed in it and would continue to practice it. Every doctor in Arizona knew where he stood in this matter and we respected him for his honesty, while we looked askance at some who were strong in pledging and weak in practicing,—as Fellows of the College. This physician was never denied staff membership by the Phoenix hospitals, but I think they drew a sigh of relief when he announced his retirement from practice.

Another practice which was very common when I arrived in Phoenix in 1907 was the astute arrangement which several of our doctors had with the morticians,—called undertakers in those days. Many patients with last stage tuberculosis were arriving in Phoenix, lingering a few months and then dying. A common practice was for the doctor to select the undertaker and turn over to him the bill for professional services. The undertaker would notify the relatives in the east that the body was being held until all bills were paid, —including those of the doctor. This might delay shipment of the body for weeks, but finally the money would come through and the doctor would receive payment of his bill. Before I learned about this system, I had a patient who died. I did not select the undertaker, but he called me and asked for my bill. It happened that the patient had paid me for each visit, so I had no bill, and so informed the undertaker. Much to my surprise, in a few days I received a check for $25.00 and a note of appreciation from the undertaker. I hear some one asking,—"Did you keep the $25.00?" In reply to that, I call your attention to a clause in Section 4, of this Chapter on ethics, where advice is given to young doctors on establishing a practice in a new locality. This clause reads,—"It is unprofessional to disregard local customs." Being keenly desirous of establishing an entente cordiale with the medical profession of Phoenix, I thought it best to conform to the local custom in this particular instance.

In another case, it seemed that this competition among the undertakers went a little too far. Once a patient of mine in the hospital was evidently nearing the end, and I was impressed with the solicitude of one of the hospital attendants over how long he would live. I rather carelessly said I thought he was breathing his last right at the moment. Later, I learned that an undertaker was almost immediately called, and the men with the basket had to wait at the hospital about an hour, until the patient quit breathing. Some years ago, it was the practice of some of our morticians to send to the wives of their favorite doctors nice boxes of candy each Christmas. How would you classify that gentle courtesy, and what would you do about it, except demand your share of the candy?

6. *Secret Remedies.* Just while I was reading this section and concluding there was nothing to be said about this unethical practice, so far as our community is concerned, a visitor managed to get into my office on the pretext of knowing a relative of mine. The relative excuse was quickly disposed of, and the man then spent an hour trying to develop some interest in me over a project he had in mind. He manufactures remedies which he says are used extensively by the medical practitioners around Chicago.

Among these is the "best thing yet discovered" for arthritis, the nature and contents of which he would not divulge. His idea is to start a "clinic" in Phoenix which will treat arthritis and feature this remedy which he proposes to supply. Not striking any fire in me, he left with the statement that he knows doctors in Tucson who will cooperate, and after he gets the clinic started in Tucson, he plans to return to Phoenix and establish one here,—if he can find some doctors who are wearing out the seats of their pants doing nothing. Reminds me of the remark once made by Dr. Willard Smith, when some heated discussion was going on in the County Society over the dereliction of a local doctor. The discussion was brought to an abrupt end when some one asked,—"Why in H--l would a doctor do such a thing?" Dr. Smith removed his pipe long enough to reply,—"Maybe the man was hungry." Also reminds me of another sage remark, —author unknown. Some one in trying to excuse some shady transaction said, "A person *has* to live.' A far-seeing and wiser man replied,— "No, a person does *not* have to live; but he does have to give account for the way he lives."

7. *Safeguarding the Profession.* This is the last and hardest ethical requirement. The section reads:

"Physicians should expose without fear or favor, before the proper medical or legal tribunals, corrupt or dishonest conduct of members of the profession. All questions affecting the professional reputation or standing of a member of the medical profession should be considered only before medical tribunals in executive session."

This is quite an order and sounds like a sentence from a campaign speech. When I opened an office in Phoenix in 1907, one of the local practitioners came around and bade me welcome and said he would like to help me get started, and would like for me to give anesthetics for him. He called me for this service four or five times in rapid succession,—once at his office, and the other times at private residences or rooming houses,—always curettments. Then, Dr. Plath, whose office adjoined mine and with whom I was later to be associated, warned me against this doctor and told me what I was already suspecting,—that these curettments were illegal abortions. So that brief relationship with corrupt practice ceased,—and I was never able to collect for any of those anesthetics. In those days, the attitude of the local practitioners was one of welcome to an abortionist practicing openly in their midst, because they had a place to refer patients who insisted on such a service. However, this man went beyond all ethical bounds, even for an abortionist. He had a bedroom adjacent to his office and took revolting pleasure in boasting that his custom was to require good looking women to spend the night with him in this room before having the operation the following morning. This doctor probably had his own ethical standards, and did not like to perform a curettment for a pregnancy, until he had made certain the woman was pregnant.

Some years later, another doctor located in Phoenix and developed an amazing flair for abortions, building up an extensive and lucrative practice in that specialty,—while maintaining membership in the county medical society. For a long time, no one was willing to assume the onus of accusing him before the proper medical tribunal, as the Principles of Medical Ethics calls for. However, this man finally went too far, seduced his office secretary, and when she demanded some financial redress, he blacked both her eyes and then left town for a prolonged vacation. That was a little too much; criminal abortions and seductions we could overlook, but a doctor has no right to beat up his office nurse or secretary, when she tries to preserve her chastity, or to make him pay for the loss of it. So, this doctor was finally tried in absentia before the proper medical tribunal and suspended from society membership for one year!

I would like to reverse the picture and say just a few words on safeguarding the profession by avoiding criticism of other practitioners. I take it that this section means that if you have any question regarding the professional ability of a doctor who has treated a patient who later comes into your hands, or if you think the treatment was unskillful or even negligent,—it is wholly unethical for you to express this opinion to patient, his relatives, or his friends. You can bring it before some medical tribunal, if your tender conscience will not let you preserve the discreet silence which the Golden Rule calls for. Such expressions as, "How in the world did your doctor let your broken arm get in this shape?" "Why didn't your doctor do this or that, and keep you out of this mess?" "That is a terrible x-ray burn; how did you get it?" "Why didn't

your doctor give you penicillin; it was the proper treatment?"

Anything which you do or say to plant a doubt in the mind of a patient as to the appropriateness of former treatment, or the skill or care of a former doctor on the case, is just digging a pit into which you may yourself fall. It is undermining the confidence which an individual has in the medical profession as a whole, and that lack of confidence will come home to you, and to all of us.

In closing, I would like to repeat the opening sentence in the first section of Chapter III. "The obligation assumed on entering the profession requires the physician to comport himself as a gentleman.' *Period.*

BASIC *Science* SEMINAR

FLUID AND ELECTROLYTE BALANCE

Roman Barroso Garcia, M.D., Pima County Hospital
Tucson Medical Center, St. Mary's Hospital, Tucson, Arizona

WATER AND ELECTROLYTE BALANCE

The exact knowledge of the fluid and electrolyte balance in the body is essential for the correct management of any kind of patient and especially the surgical patient. Its deficiencies may result in serious complications or may actually lead to death. There is an intimate relationship between the water and electrolyte balance; however, a proper water balance does not insure adequate electrolyte balance(1).

I—TOTAL BODY WATER

In the first place it is very important to know the normal distribution of water and electrolytes and the size of the fluid compartments.

Three methods have been employed for the measurement of total body water, (2); 1) Desiccation, 2) Body Specific Gravity and 3) Dilution techniques.

The values reported with the desiccation technique are summarized in table number I.

TABLE 1

Reference	Age, years	Sex	Total body water per cent body weight
Bischoff	Newborn		66.4
Fehling	Newborn		74.1
Iob and Swanson	Newborn		75.5
Widdowson et al.	Newborn		68.8
Camerer et al.	Newborns		69.2—73.0 (6 infants)
Widdowson et al.	4.5	M.	53.8
Volkman	Adult	M.	65.7
Mitchell et al.	35	M.	67.9°
Bischoff	33	M.	58.5
Widdowson et al.	25, 42, 48	M.F.M.	61.8, 56.0, 81.5°

°edematous at time of death.

Table 1: From Edelman, I. S. and Col.: Surg. Gyn. & Obst. 1952, 95.1.

Obviously this first method has no clinical application.

Behnke(2) in 1941 reported his studies dealing with specific gravity measurements in young men. He showed that in normal subjects the determination of body specific gravity enabled one to estimate the body fat content. He conceived of the body as consisting of a fat-free portion of essentially constant gross composition and a variable quantity of fat. Behnke formullated his now widely accepted concept of the lean body mass. He proposed on a theoretical basis ,that body water and body fat must bear an inverse relationship to each other.

However, Edelman and co-workers(3), say that the measurement of speific gravity in the human subject is a difficult laboratory procedure which at the present time seems far from practical for clinical application, and the fat content is difficult to measure by any direct means, although complicated indirect measurements have been made.

In relation to the dilution method, several substances have been used: potassium, thiourea, sulfanilamide, tritium (the radioactive isotope of hydrogen, mass 3), antipyrine and deuterium oxide (heavy water). Of all, the last two seem to be better.

Antipyrine was first introduced for this purpose by Soberman and his associates in 1949(2), they found similar values for the body water obtained with antipyrine and with deuteriun oxide. Values are from 43% to 58%. Messinger, Steele, Osserman and co-workers found satisfactory correlation of values for body water obtained with the use of antipyrine with those obtained from specific gravity measurements. They

found 43% in the most obese to 72% in the leanest.

However, antipyrine equilibrates slowly with abnormal fluid deposits such as ascitic fluid, is selectively bound by protein and is metabolized at a rate which varies between subjects. Deuterium oxide, according to Hardy and Drabkin(2) was used for the first time by von Hevesy and Hofer in 1934. Moore introduced its use in the United States in 1946.

Several reports have appeared since then. Hardy and Drabkin(2) reported their results in a group of healthy adult male and female human subjects, ranging in size from very lean to very obese. The leanest male had a total body water value of 71% of body weight (44.5 liters), and the most obese man had 42% (48.3 liters). The leanest female had 68% and the most obese 50%. However the most obese female subject was not clinically as obese as the most obese male subject. The average value for body water for eight healthy men was 60% of body weight and 55% in females.

Schloerb and his associates(2) using deuterium oxide reported an average value of 61.8% for body water in healthy young adult men and 51.9% in healthy young adult women. They found the total body water to be more closely correlated with surface area and oxigen consumption than with the other physical indexes examined. Schloerb and associates cited by Randall(4) found an average of 23.6 liters per square meter in males, and 18.3 liters per square meter in females, each with a coefficient of variation of 4.4 per cent.

Friis-Hansen and associates in 1951(5) reported their observation in 24 children and in 20 instances determinations were made by both the deuterium oxide and antipyrine methods. Values between 70.2 and 83% body-weight were found in the neonatal period. The premature infants fell into the same range as the full term infants. During the first six months of life there was some decline in body water. Beyond 6 months of age the values varied between 53 and 63% and showed no correlation to age or sex.

Edelman and associates in 1952(3) reported their results of total body water measurements in normal human subjects. One hundred and twenty determinations were made covering an age range of 2 days to 86 years and a weight range of 2.3 to 100.3 kilograms.

In newborn infants under 1 month of age, values were from 71.8% to 83.0% of body weight with an average of 76.7%. In infants from 1 to 12 months of age values are from 53.0% to 70.8% and a average of 62.6%.

In children 1 to 9 years of age values are from 55.2% to 62.8% and average 58.9 per cent of body weight. In adolescent males from 10 to 16 years of age values are 51.8% to 63.2%, and average 59%. In females values were from 49.8% to 59.5% with an average of 56.2 per cent of body weight.

In adults males from 17 to 34 years of age values are from 53.3% to 70.3% and average 61.1 per cent of body weight. In females (20 to 31 years of age) the values are 45.6% to 59.9% with an average of 51.2 per cent of body weight. In adults males 35 to 54 years of age values were from 44.7% to 64.1% and average 55.4%, and in females 40.5% to 54.3%, with an average of 48.2 per cent of body weight. Adults over 54 years of age, in males values were from 47.8% to 62.8% with an average of 54.3% and in females, from 42.0 to 53.4, an average of 46.2 per cent of body weight.

Before 16 years of age, no appreciable sexual difference in body water content is noted. In the young adult a clear-cut sex difference becomes apparent. The male exhibits approximately 17 per cent more body water. This sex difference persists for the remaining adult years. Both males and females show a fall in relative water content during the middle years of life and older males and females show a slight further decrease in total body water with advancing age.

II.—FLUID COMPARTMENTS

It is classical to divide the body fluids into two major spaces: Extracellular and Intracellular. The extracellular fluid is further divisible into Intravascular (plasma) and Extravascular (intestitial) fluid.

Levitt and Gaudino in 1950(6) presented a very interesting article. They reviewed the substances used for the Extracellular space measurements such as: sodium and cloride concentration, radioactive cloride and sodium, bromide, sodium thiocyanate, sulfate, sucrose, mannitol and inulin.

The size of the extracellular space depends on the method used. For instance, Kalterider using radioactive sodium showed a sodium space of 24.8% of body weight at 3 hours, in the adult. Flexner, however, in newborn infants with the

same substance obtained 43 per cent of body weight. Crandall and associates with thiocyanate obtained values in males of 24.2% of body weight (4).

Walser(7) in 10 normal subjects and using radiosulfate (S-35), obtained an average sulfate space of 16.3%.

Schwartz cited by Randall(4) found in 7 normal adults males an inulin extracellular fluid space of 14 to 18 per cent of body weight, an average of 16.2%. Simultaneous sodium spaces averaged 26.7 per cent and thiocyanate space 25.9 per cent in some of the same group.

Levitt and Gaudino(6) with inulin found an average of 19.4 per cent of body weight in the dog and 16 per cent in the human, and they concluded that inulin represents the best measure of extracellular fluid available.

Plasma volume seems to be more closely correlated with total body water than with body weight. Schloerb cited by Hardy and Drabkin (2) reported their results in a group of healthy adult men of widely different degrees of obesity. Plasma volume ranged from 2.75% (in th very fat) to 5.65% (in the very lean) of body weight an average deviation of 22%. Expressed as a percentage of total body water, however, plasma volume ranged from 6.2% in the most obese to 7.8% in the leanest with a mean of 6.96% and an average deviation of 7%.

The Intracellular fluid by difference is 30 to 45 per cent of body weight.

III—CHEMICAL ANATOMY OF THE BODY FLUIDS

There are big differences in the chemical composition between extracellular and intracellular fluids. We can appreciate this in the classical columns drawn by Gamble(8).

Sodium and cloride ions, are predominant in Extracellular fluid, while in Intracellular fluid they are absent. Here potasium and phosfate ions are the principal ions with a high content of proteins.

Electrolytes of the blood and interstitial fluid.

Cations (base +)	M.Eq./L.
Sodium	142
Potasium	5
Calcium	5
Magnesium	3
	155

Interstitial fluid contains almost no proteins.

Electrolytes of Intracellular fluid.

Cations	M.Eq./L.
Potasium	140
Magnesium	45
Sodium (variable)	10
	195

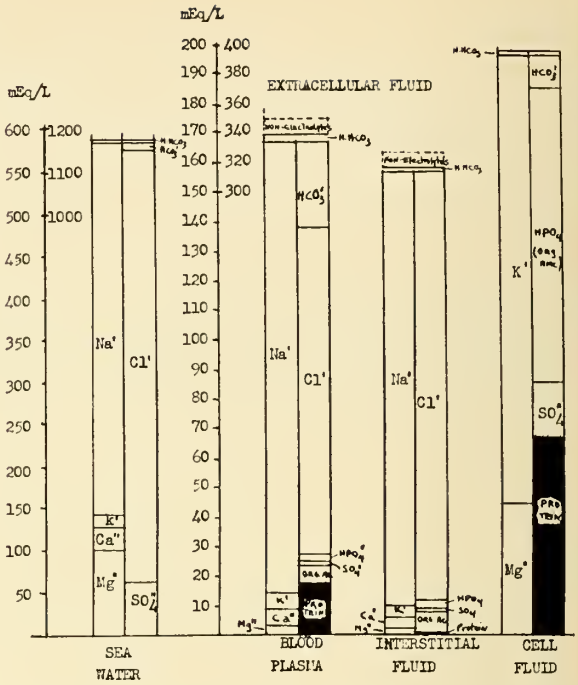


Diagram from: Gamble, J. L.: Chemical Anatomy, Physiology and Pathology of Extracellular Fluid. Harvard University Press. Cambridge, Mass. 1947.

Anions (acid —)	M.Eq./L.	Anions	M.Eq./L.
HCO3	28	HCO3	10
Chloride	103	Organic Acid	
Orangic Acids	6	PO4	100
Phosfate	1	Sulfate	20
Sulfate	1	Protein	65
Protein	16		
	155		195

It is obvious that the maintenence of body water and electrolyte balance demands that the intake equal the output.

The kidneys play the chief role in the control of the volume and concentration of body fluids. However the renal regulation is merely the crucial activity in a complex process integrated by the regulation of the cardiovascular system, the neurophyophysis, the humoral and neural control of the blood pressure and capillary bed and the adrenal and other endocrine glands(9). The importance of the protein should be emphasized. It is by virtue of the osmotic pressure exerted by these colloid substances against the capillary blood pressure that escape of fluid from the capillaries into the surrounding tissues is prevented(10).

IV—WATER LOSS

Normally the body loses water in three ways: 1) the lungs and skin, 2) the kidneys, and 3) the gastrointestinal tract.

The elimination of water by the route of lungs and skin is in relation to the environmental temperature and humidity. Heat normally is dissipated by vaporization from the skin and lungs, and by radiation, conduction and convection from the body surface. Water so vaporized, in the absence of visible sweating, is called insensible water loss. In the normal person the insensible water loss amounts to from 1000 cc to 1500 cc daily. Water loss from the lungs is not accompanied by loss of electrolytes. The rate of water loss from the respiratory tract depends on the volume of respiratory exchange and the content of water of the inhaled and exhaled air. These are in turn dependent on the temperature and humidity of the environmental air. The insensible loss of water from the skin is dependent chiefly on a gradient for diffusion through the skin. This is dependent chiefly on skin temperature if the surface is dry. A small amount of electrolyte is lost from the skin when there is no sweat, presumably through desquamation, though there may be minimal activity of sweat glands, as well. The insensible water loss, excluding sweat, is roughly correlated with heat production, so that 42 Gm. are lost for each 100 calories produced. The quantity of electrolyte in sweat has been found to be so variable that any prediction of the composition is difficult and unrealiable. For clinical purposes the concentration of sodium and chloride may be assumed to be 25 to 50 millimoles per liter and that of potassium, 15 millimoles. The concentration of sodium, potassium and chloride in sweat are influenced by adrenocortical hormones(11).

The concentration of the urine determines the volume of water excreted by the kidneys and is dependent on the renal load, the water intake and the ability of the kidney to form either a concentrated or dilute urine. Lashmet cited by Mason and Zintel(10) consider 500 cc. as the minimal amount of urine sufficient to eliminate the average of waste products (30 to 40 Gm.). Healthy kidney is capable of concentrating urine to a specific gravity of 1.032. In disease the concentrating power of the kidney is reduced and as much as 1500 cc. of urine may be required to eliminate the waste products. Coller and Maddock consider 1000 cc. daily a satisfactory urinary output for the majority of surgical patients.

The amount of water excreted into the gastrointestinal tract as saliva, gastric juice, etc., is enormous. Gamble found it to be about 8,200 cc. This amount being composed of 1500 cc. saliva, 2500 cc. gastric secretions, 500 cc. bile, 700 cc. panreatic juice and 300 cc. secretions of intestinal mucosa. However, most of this water is reabsorbed in the ileum and proximal colon, and fecal material contains but about 150 cc.

Besides this "Physiological" water, there are losses called "Pathological" or "Abnormal," such as in diarrhea, vomiting, suction drainage from stomach or intestines, gastric, duodenal or biliary fistulas, etc. The amount may reach 1000 to 4000 cc. or more in 24 hours.

The characteristics of the electrolytes losses of the gastro-intestinal tract have been the subject of much study.

Studies of Randall and collaborators(4) showed that the average gastro-intestinal tract drainage is not isotonic (as before believed), but is hypotonic insofar as sodium and chloride are concerned. The marked differences in types of electrolytes lost depends upon the location of the drainage point within the gastrointestinal tract.

Beside these three main routes, the body can lose water and electrolytes through large open wounds. Moore and his associates(12) in a study about the exudate of burned patients found that the exudate sodium may comprise 95 per cent (or more) of all sodium lost and an average of 45 per cent, with concomitant urinary sodium loses reduced virtually to zero. Chloride balances resembles that of sodium but this urinary loss may be higher and exudate loss lower. Potassium loss is 20 per cent or less of all the potassium lost from body and in 1 patient (who died) exudate potassium comprised 30 and 45 per cent of the potassium lost from the body in the two periods measured.

In the first few days following an abdominal-perineal resection the packing placed in the perineal wound is saturated with material which is quite similar to plasma in its composition and 500 cc. or more of this material may be lost per day.

Water and electrolytes may be lost to the circulation and extracellular fluid space without actually leaving the body itsef, such as in burns, trauma or infection. Since the composition of this third space fluid is essentially that of extracellular fluid and since it results in internal dehydration the replacement which is required is in

GASTROINTESTINAL TRACT LOSSES, MILLIEQUIVALENTS PER LITER

		Na.	K.	Cl.
Gastric.	Average	59.0	9.3	89.0
Fasting	Range	6.0-158	0.5-65.0	13 2-167.2
130 specimens	2/3 cases	31.0-90.0	4.3-12.0	52-124
Small Bowel	Average	104.9	5.1	98.9
(Miller-Abbott suction	Range	20.1-157.0	1.0-11.0	43.0-156.1
89 specimens	2/3 cases	72-128	3.5-6.8	69-.27
Ileum	Average	116.7	5.0	105.0
Miller-Abbott suction	Range	82-147	2.3-8.0	60.7-137
17 speciments (7 patients)	2/3 cases	91-140	3.0-7.5	82-125
Ileostomy	Average	129.5	16.2	109.7
(Recent)	Range	92-146	3.8-98.0	66-136
25 speciments	2/3 cases	112-142	4.5-140	93-122
Cecostomy	Average	79.6	20.6	48.2
20 speciments	Range	43-135	3.7-47.3	18-88.5
9 patients	2/3 cases	48-116	11.1-28.3	35-70
From biliary tract and from pancreatic fistulas:				
Bile	Average	145.3	5.2	99.9
22 specimens	Range	122-164	3.2-9.7	77-127
12 patients	2/3 cases	134-156	3.9-6.3	83-110
Pancreas	Average	141.1	4.6	76.6
3 patients	Range	113-153	2.6-7.4	54.1-95.2

Tables from: Randall, T. H. Water and Electrolyte Balance in Surgery. Surg. Clin. North-America 32:445-469, 1952.

terms of the composition of extracellular fluid and frequently, if protein loss is high, of plasma.

DISORDERS OF ELECTROLYTE METABOLISM

Gastineau(13) divides the disorders of electrolyte metabolism in two large groups. The first are those of water balance, and second those characterized by changes in the hydrogen-ion concentration (Disturbances of acid-base balance).

Disturbances of acid-base balance will not be treated, and only a few words will be mentioned. When the disturbance decreases the pH, it is called Acidosis, whereas if the pH increases, it is called Alkalosis. When there is a disturbance of acid-base balance resulting from changes in pulmonary ventilation, it is spoken of as Respiratory acidosis or Alkalosis, whereas if the primary disturbance is a matter of loss of body fluids, administration of acid or alkaline substances or alterations in renal function, it is considered to be Metabolic Acidosis or Alkalosis.

Disturbances in water balance can be divided into A) Dehydration (extracellular fluid volume decreased), and B) Overhydration (extracellular fluid volume increased). There are two varieties of dehydration: 1) water deprivation and 2) Electrolyte loss; and two varieties of overhydration by 1) retention of electrolytes and 2) water intoxication.

Dehydration by water deprivation gives hypertonic extracellular fluid. Symptoms are: thirst, fever, dry skin, dry tongue, restlessness, full pulse, normal blood pressure and scanty concentrated urine.

Dehydration by loss of electrolytes is characterized by weakness, pallor, low blood pressure, absence of thirst and dilute urine, which may be normal in volume. If blood pressure has fallen sufficiently low, however, there may be oliguria or anuria. This syndrome is observed in: diabetic acidosis, Addisonian crisis, heat exhaustion, diarrhea, vomiting and gastrointestinal fisula. Many of the symptoms of this state can be explained by the circulatory failure.

However dehydration very often is the result of both deprivations, and is called "mixed" dehydration.

Overhydration caused by ingestion of very large amounts of water is called "water intoxication." Here we have hypotonicity and this hypotonicity appears to cause certain shifts in intracellular hydration which produce a definite set of symptoms. In milder degrees: nervousness,

salivation and vomiting. In more severe cases: disorientation, stupor, irregular twitching, movements of the extremities and finally convulsions may occur. Hypertonic solution of sodium chloride is effective in correcting this condition.

Overhydration as result of retention of sodium, is caracterized by large volume of extracellular fluid and normal or increased concentration of sodium. Edema is a frequent symptom. This symdrome is seen in heart failure, nephritis, and when excessive amounts of solution of sodium chloride have been administered.

In practice mixed disturbances often are seen. Early sodium chloride deficiency is characterized by: weakness, apprehension and generalized feeling of discomfort, and abnormal thirst is also frequently present. When the deficiency becomes more severe early symptoms of vascular shock develop. The skin becomes pale, cold and sweaty, and blood pressure begins to drop. Tachycardia, and diffuse abdominal distress are fairly constant findings. Severe hiccouphs, and soon shock develops, and mild irrationality or delirium appears. Coma can be present, temperature becomes subnormal, urinary output decreases sharply, and the non protein nitrogen rises. The reduction in serum sodium concentration results in a tendecy toward acidosis because less sodium is available for combination with bicarbonate. Serum bicarbonate then becomes reduced.

Symptoms of potassium deficiency in the early stage are quite inconstant. As the deficiency increases, the more constant symptoms are: weakness, apprehension and a feeling of generalized discomfort. Anorexia is common but nausea and vomiting less than in sodium chloride deficiency. Insomnia, alkalosis and an increase in the nonprotein nitroge content of blood is quite common; periodic paralysis has been reported. A serum potassium level of 3.5 mEq. or less per liter is indicative of potassium deficiency of sufficient degree. The electrocardiographic changes are very important in confirming potassium deficiency; decreased amplitude or inversion of the T waves and a lengthening of the Q-T intervals. An excellent description of the symptoms in deficiencies of electrolyte balance is given by Moyer in his book(14).

FLUID AND ELECTROLYTES REQUIREMENTS

In accordance with our previous knowledge about the "physiological" and "pathological" or "abnormal" losses of water and electrolytes, the adequate replacement will vary with each particular case.

Attention must be given to several factors: age, sex, weight, fat content, climate (heat, humidity), vomiting, fever, diarrhea, operative procedures (pre, during, and post-operative), suction by gastroduedenal tubes (Levine, MillerAbbott, etc.), biliary drainage, etc., etc.

All these factors make it impossible to assign any particular amount of water or electrolytes for general corrective treatment.

Roughly, for an uncomplicated surgical case 2000 to 2500 cc. of water must be given and in complicated cases 3000 to 3500 are necessary (Coller and Maddock cited by Mason and Zintel(10)). Here the output is extremely important. The abnormal losses should be calculated and the quantity excreted should be replaced by an equal quantity of proper solution.

Low levels of electrolytes in plasma require replacement. Serum sodium is seriously low in most surgical patients if it is below 125 mEq.

THE ELECTROLYTE CONTENT OF 1 LITER OF INFUSION FLUID (mEq.)

	Na.	K.	Cl.	Effective HCO2
Sodium chloride 0.9%	154	0	154	0
M/6 sodium lactate	167	0	0	167
Sodium bicarbonate 1.2%	163	0	0	143
Ammonium chloride 0.75%	0	0	140	0
Dextrose in water	0	0	0	0
Potassium chloride ampules (1.59 gm.) in 10 cc	0	20	20	0
Special Solutions:				
Hartman's solution*	136	5.3	112	33
Darrow's solution	120	35	105	50
Sodium chloride-potassium chloride (Mudge)	110	30	140	0
Potassium chloride (2.23 gm.) 5% dextrose in water	0	30	30	0

*Ca— — 3.6 mEq.

Table from: Randall, T. H. Water and Electrolyte Balance in Surgery. 32, 445-469, 1952.

per liter and shock is likely at levels below 120 mEq. per liter. Much depends on the rate of fall. Serum chloride requires replacement in most surgical patients when the level falls to 85 mEq. per liter, and bicarbonate when it is below 15 mEq. per liter (33 volumes per cent), while potassium levels below 3.4 mEq. per liter are suspected and below 3.0 mEq. require replacement. Flame photometers for the direct measurement of sodium and potassium concentration in biological fluids have proven to be most valuable.

The selection of the proper parenteral fluid or combination is very important. The following table gives the composition of various types of fluids commonly used.

It should be remembered that parenteral replacement is always a temporary and inadequate substitute for the gastrointestinal tract, and oral intake should be resumed as soon as returning function permits, supplementing parenterally until oral intake is adequate in water, electrolytes and calories(4):

REFERENCES

1. Cole, W. H., Laws, J.: Electrolytes in Surgery. Surg. Clinics Of North-America. 32: 1-28, 1952.
2. Hardy, D. J. and Drabkin, L. D.: Measurement of Body Water. J.A.M.A. 149; 113-116, 1952.
3. Edelman, I. S., Haley, H. B., Schloerb, P. R., Sheldon, D. B., Friis-Hansen, B., Stoll, G. and Moore, F. D.: Further Observations on Total Body Water. Surg. Gyn. Obts. 1952, 95: 1.
4. Randall, T. H.: Water and Electrolyte Balance in Surgery. Surg. Clinics of North-America. 32: 445-469, 1952.
5. Friis-Hansen, B. J., Holiday, M., Stapleton, T. and Wallace, W. M.: Total Body Water in Children. Pediatrics 7: 321-327, 1951.
6. Levitt, F. M. and Gaudino, M.: Measurement of Body Water Compartments. Am. J. of Medicine. 9,208-215, 1950.
7. Walser, M.: Volume of Distribution of Radiosulfate as a Measure of the Extracellular fluid. Proc. Soc. Exper. Biol. & Med. 79: 372-375, 1952.
8. Gamble, J. L.: Chemical Anatomy, Physiology and Pathology Of Extracellular Fluid; A lecture syllabus. Cambridge, Mass., Harvard University Press. 1947.
9. Darrow, C. D., Pratt, L. E.: Fluid Therapy. J.A.M.A. 143: 365-373, 1950.
10. Mason, L. R. and Zintel, A. H.: Preoperative and Postoperative treatment (Water Balance pags. 131 to 156). Saunders, 2nd Ed. 1947.
11. Darrow, C. D. and Pratt, L. E.: Fluid Therapy. J.A.M.A., 143: 432-435, 1950.
12. Moore, D. F., Langohr, L. J., Ingebretsen, M. and Cope, B.: The Role of Exudate looses in the protein and Electrolyte Imbalance of Burned Patients. Ann. Surg. 132: 1-19, 1950.
13. Gastineau, F. C.: A Classification of The Disorders of Electrolyte Metabolism. Procc. Staff. Meetings Mayo Clinic. 25: 630-634, 1950.
14. Moyer, A. C.: Fluid Balance. A clinical Manual. The Year Book Publishers, Inc. 1952.

PHOENIX *Clinical* CLUB

PHOENIX CLINICAL CLUB CASE RECORD NO. 15

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A seventy-two-year-old Finnish-born, married steel worker entered the hospital with a chief complaint of "severe" shortness of breath.

Two years before entry the patient was told that he had an "irregular" heart but successfully discharged his duties as a steel worker until eleven months before entry, when he tripped and fell 20 feet while on the job and injured the left seventh, eighth and ninth ribs anteriorly and his left hand. Radiograms of the chest were reported as not remarkable except for the rib fractures. After spending twelve days in two other hospitals he returned home but not to his job. The patient dated the beginning of his dyspnea as shortly after this accident. About nine months before entry vague precordial pain, described by the patient as 'constriction' and "congestion," appeared especially after exertion but frequently at night. This discomfort lasted usually about five minutes but occasionally much longer and did not always disappear with rest. No radiation of pain to the shoulders or arms was ever present. The dyspnea temporarily improved three and a half months before entry so that he was content to take care of his flocks of turkeys and do other small jobs. However, his dyspnea recurred in the next month, and he was denied even these minor pleasures, being unable to walk short distances without excessive fatigue. A slight cough productive of small amounts of whitish sputum appeared. About five weeks before entry he developed hay fever (which he had experienced in the past) and noted more difficulty sleeping at night, requiring two pillows to sleep comfortably. One month before entry he noted an increase in his anorexia, which he believed had been present since his accident. He further noted a weight loss of about 20 pounds in the last five or six months.

He visited the Medical Clinic of the Out Patient Department one month before admission, and an additional history was obtained of exposure to tuberculosis; a daughter had had the disease several years previously and a sister-in-law

was similarly afflicted thirty years before. Examination at this time revealed a blood pressure of 150 systolic, 90 diastolic, a pulse rate of 80, with 8 to 10 skipped beats at the wrist per minute, and a Grade II apical systolic murmur and auricular fibrillation; no definite cardiac enlargement was noted. The temperature was 97°F., and the respiratory rate 20. The lungs were resonant, and basilar rales cleared on coughing. A firm, nontender right supraclavicular node (1.5 cm. in diameter) was noted. Abdominal and rectal examinations were not remarkable. A blood Hinton test was negative. Radiograms of the chest revealed an enlarged heart with a cardiothoracic ratio of 18:25, the enlargement appearing predominantly in the region of the left ventricle. The lung fields exhibited extensive, diffuse, linear and mottled densities, particularly in the middle and lower portions. The hilar vascular shadows were poorly seen but appeared somewhat enlarged. The patient was digitalized and given nitroglycerin. Urinalysis was negative.

Two weeks before entry he was again seen in the Medical Clinic, at which time his blood pressure was 130 systolic, 80 diastolic, and the pulse and breath sounds were essentially unchanged. Very shortly thereafter the dyspnea rapidly increased, three or four pillows being required at night. Five days preceding entry the dyspnea became so severe that virtually no sleep was obtainable, the patient having to sit in a chair or upright in bed to facilitate easy breathing. The next day he developed ankle edema, which gradually increased.

Physical examination on admission revealed a well-developed, well nourished, somewhat apprehensive but co-operative man with extraordinary dyspnea, coughing frequently and usually swallowing the sputum. Cyanosis of the lips, fingers and mucous membrances was present. Bilateral distention of the neck veins, slightly more marked on the left, was evident in the upright position. A few small, hard nodes were present in each supraclavicular region. The chest was moderately emphysematous, and dullness was present on the right posteriorly and in the axilla to the angle of the scapula, with decreased breath and spoken voice sounds; dry rales were present in the right chest above the area of dullness, but no rales were noted on the left. The notable cardiac signs were a maximal impulse of the heart 11 cm. to the left of the midsternal line in the lower fifth interspace, auricular fibrillation with a 10-beat pulse deficit, some occasional bigeminy, and a short apical systolic murmur. Moderate ankle and slight to moderate sacral edema was present.

The temperature was 97°F., the pulse 80, and the respirations 32. The blood pressure was 135 systolic, 90 diastolic.

Investigative studies revealed a circulation time (Decholin) of 50 seconds, a venous pressure equivalent to 222 mm. of water and a vital capacity of 900 cc. Examination of the blood disclosed a red-cell count of 5,100,000, with a hemoglobin of 14.5 gm., and a white-cell count of 9550, with 80 per cent neutrophils. The prothrombin time was 19 seconds (normal, 15 seconds). The nonprotein nitrogen was 28 mg., the blood sugar 96 mg., and the total protein 5.9 gm., per 100 cc., and the sodium 127.8 milliequiv., the chloride 92 milliequiv. and the carbon dioxide 22.7 milliequiv. per liter; the alkaline phosphatase was 4.6 units per 100 cc. The phenolsulfonephthalein test showed 62 per cent excretion of the dye, and the bromsulfalein test 64 per cent retention of the dye. The gastric acidity was in the normal range. Sputum smears were negative for acid-fast organisms and abnormal cells. Two separate gastric washings were positive for tumor cells and gave a plus four guaiac reaction. The stools were consistently guaiac positive. Urinalysis was not remarkable; the urinary sodium chloride was 1 or 2 gm. per 24 hours. An electrocardiogram revealed auricular frillation, low voltage, sagging ST segments in Lead 1 and 2 and AVL and V, and inverted T waves in Lead 1 and 2 and AVL and V_4 and V_6.

Radiographic studies demonstrated very little change in the chest since the previous examination. A roentgenogram of the abdomen was marred by the dyspnea, the only discernible visceral outline being that of the liver, which was at the upper limits of normal; some air was present in the large bowel, and little or none in the small bowel. A gastrointestinal series was attempted but was incomplete and unsatisfactory because of the patient's extreme illness; however, the midportion of the posterior wall of the stomach appeared to be rather straight, and the duodenal bulb was deformed. X-ray films of the bones were normal.

The patient was placed on a cardiac regime, including digitoxin, ammonium chloride, Sod-

ium Amytal, Mercuhydrin, a diet moderately low in sodium, and other supportive therapy. Despite these measures he continued to be critically ill and died on the sixth hospital day.

DISCUSSION BY DR. KENT THAYER

This 72 year old man apparently died in congestive failure. The cause of this congestion could be from any of several different causes.

Evidently this man was getting along quite well until he had his fall about eleven months before he entered the hospital. At that time he fractured two or three ribs on the left. Whether he had myocardial injury from the trauma we do not know, for nothing is stated about this. It is known that a blow or a rib injury resulting in compression of the heart, or even cardiac puncture from a broken rib, can occur. The amount of cardiac disfunction that follows depends on the degree of injury and the extensiveness of the injury. Electrocardiograms may reveal changes of an anterior myocardio infarction, or, if the injury is over a small area without involving a coronary vessel, the electrocardiogram may show only a small amount of change.

Since the tracing was taken nearly eleven months later, it is hard to interpret this as primary cardiac trauma. Evidently this man had a progressively increasing size of his heart, and along with this was a progressive dyspnea. The blood pressure readings that this patient had are somewhat against constrictive type of pericarditis and the grade two apical systolic murmur would fit with cardiac dilatation.

The physical findings of his chest would suggest pulmonary congestion secondary to myocardia failure and the dullness in the right lower lung field would suggest fluid in his right pleural, cavity. In a man 72 years old, the most common cause of myocardial failure with progressive enlargement of the heart and progressive dyspnea would be on a vascular basis causing either a diffuse myocardial fibrosis, coronary occlusion, or insufficiency. The electrocardiogram would point more towards a strain type of pattern from the description rather than an actual coronary occlusion. It is also somewhat against a pericardial pattern, but I believe this point could be argued. However, it is certainly not a diffuse type of pericarditis. If pericarditis is thought of in a person of this age, the most likely cause again is vascular in origin. Certainly the pyogenic type of pericarditis would have caused an increased temperature, and also an increased white blood count.

A tuberculous pericarditis could occur, of course, without these findings. This man had in the past been in contact with tuberculosis, but his exposure was many years ago, and I doubt if it would manifest itself at this time.

The laboratory findings reveal a markedly increased circulation time and increased venous pressure which is compatible with right and left heart failure. The NPN and the blood sugar were normal and the total proteins were only slightly decreased. His serum sodium and chlorides were moderately decreased while carbon dioxide was about normal. Also the alkaline phosphatase was not markedly above normal. Retention of 64% bromsulph, I believe means very little in a patient with congestive failure; at least we are assuming he had congestive failure, and the increased prothrombin time would also be compatible.

On the physical examination I am unable to find where the liver has been mentioned, or any description given of the abdomen. An x-ray film of the abdomen revealed the liver to be at the upper limits of normal. Apparently this means size. There is one thing in this protocal that we must accept as fact; namely, in two specimens of gastric washings tumor cells were found and the specimens were positive for blood, as were the stool specimens. Evidently this malignancy of the stomach had metastasized by the time the patient was first seen, for on his first examination, a supraclavicular node was noted. If this is a carcinoma of the stomach, and has metastasized to the liver, the marked loss of liver function as shown by the bromsulph test would be unusual, for there must be a tremendous loss of functioning liver tissue for this test to be positive.

If we are to assume that this patient had one disease rather than two, we must put the carcinoma of the stomach, the progressive weight loss, anorexia, dyspnea, and cardiac findings into one diagnosis.

Cases of metastatic carcinoma to the heart and pericardium have been described. Scott and Garvin reported 61 patients with pericardial metastases out of 1,082 cases of malignancy. The heart was involved in 79 instances, and the heart and pericardium together in 22 cases; of these the bronchus and breast were the most common cites of the primary tumor. However, it is reported that esophageal carcinoma metastasized

Inhibition of Excess Parasympathetic Stimuli in Peptic Ulcer with Banthine®

Medical literature now contains more than 200 references to the beneficial role of Banthine Bromide (brand of methantheline bromide) as evidenced by a marked healing response of peptic ulcers. Rapid symptomatic improvement, particularly with reference to pain relief, is followed by roentgenographic demonstration of crater filling.

The therapeutic action of the drug in decreasing hypermotility and hyperacidity, together with the remarkable early subjective benefit, is indeed a desired approach in ulcer management.

Treatment is individualized to the patient's needs. One or two tablets (50 to 100 mg.) is administered every six hours, around the clock, in conjunction with appropriate diet control and antacid medication as indicated.

Banthine is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Searle: Research in the Service of Medicine.

Ulcer Facies Composite



to the pericardium. The symptoms of pericardial involvement are usually constructive type of pain substernally with progressive shortness of breath and evidence of right heart failure.

Cases have been reported, but rather infrequently, of constrictive pericarditis which I do not believe our patient revealed. The electrocardiograms in pericarditis usually reveal a slightly elevated ST segment and inverted T waves over the areas of involvement. If the pericarditis is diffuse, this may give a typical inverted T wave pattern throughout all leads, but if the pericarditis is localized, as one would suspect in metastatic inolvement, the changes may be limited to only a few leads, but usually AVL and AVF show the changes consistently, and in our patient, only AVL revealed an inverted T wave, but along with two of the V leads and lead 1 and 2, according to the description, the ST segments were sagging. This may have been due to digitalis affect.

Whether this man had pulmonary metastasis I am unable to say. It is certainly possible, but I would suspect his pulmonary difficulties were more likely on a congestive basis. A superior vena caval syndrome causing engorgement of the neck veins, markedly increased venous pressure, I believe is not compatible with the findings in our patient for usually dyspnea is not a common symptom of this condition.

My diagnosis therefore is, carcinoma of the stomach with metastasis to the pericardium and possible myocardium resulting in myocardial failure and death. There may have been liver metastases.

DISCUSSION BY DR. JOS. M. GREER

A 72 year old steel worker with severe shortness of breath suggests immediately heart or chest or both, and we are told that he did have an irregular heart about two years previously. However, he got along very well until about eleven months previously when he had a fall of about 20 feet injuring the left side of his chest. This injury was severe enough to produce rib fractures. After that he did not work and had dyspnea. Did he have one of those heart contusions that we now hear about not too infrequently? This injury could well have bumped his heart a little.

Patient had a vague sort of pain, described as "congestion," constricting after exertion and at night, but he had no radiation of this pain. This could go along with heart contusion. One would expect some improvement and he did have some improvement for awhile. However, it shortly got worse again until he was almost completely disabled because of dyspnea, fatigue, etc. About this time he began to cough and expectorate white sputum which brings our attention not only to the heart but to the lungs as well. Then a weight loss was noted which makes us sense some progressive general condition.

When he visited the Medical Clinic we get a history of exposure to tuberculosis. Was this significant or not? I rather think not as the rest of the picture does not fit in with tuberculosis and there was a negative sputum and while an atypical tuberculosis cannot be definitely ruled out in a patient like this, I will dismiss tuberculosis from the discussion.

Physical examination revealed a heart that was not normal, apical murmur, some irregularity, and auricular fibrillation and enlargement. The lung findings at this time of extensive diffuse linear and mottled densities, in the middle and lower portion seem to me significant and the wee little supraclavicular node perhaps should not be considered too lightly. The clinicians apparently thought that heart treatment would help him and perhaps it did for awhile.

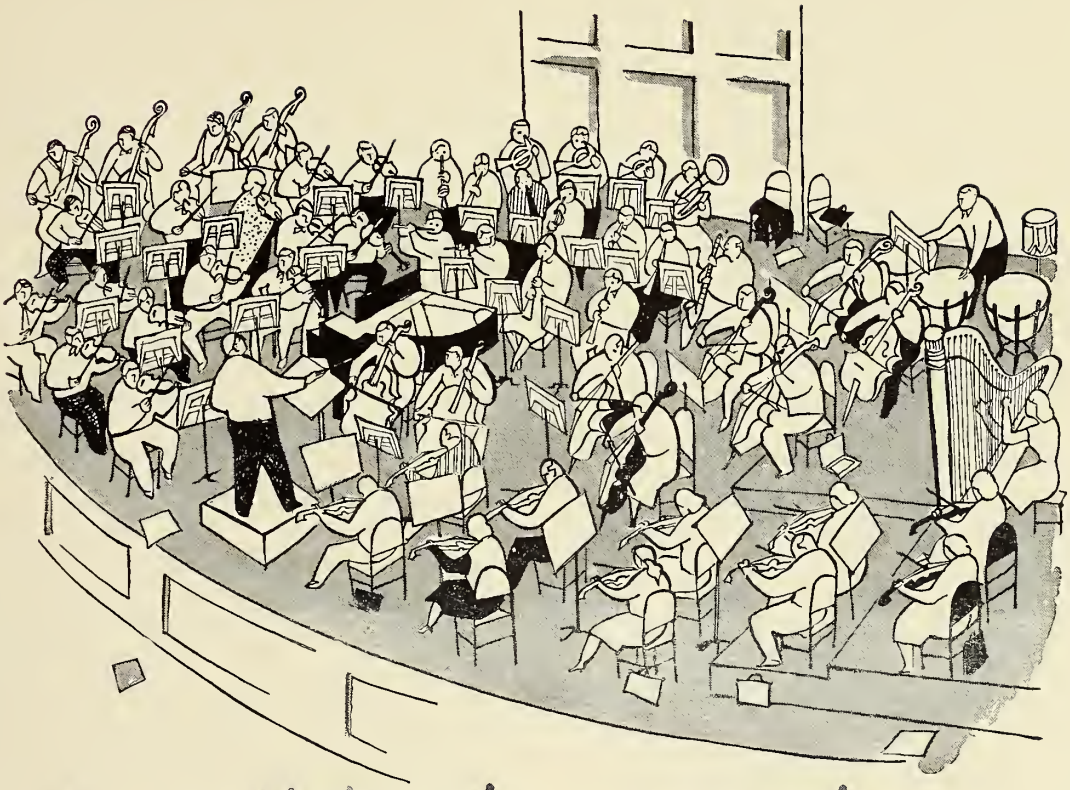
The urinalysis was negative so we shall not consider kidney disease as a factor in this patient's illness.

The dyspnea rapidly increased to great severity, with ankle edema.

The physical examination, with the extraordinary dyspnea and the cyanosis of lips, fingers, mucous membrances, and the distended neck veins, was significant and indicates some mechanical interference in the venous return circulation. And now we find more wee small, hard, nontender nodules. What do these mean?

The chest findings of dullness in the back of the lung are significant and indicates something more than the heart findings would produce. The heart was not normal but it does not seem that the heart findings could account for the whole picture; with a rate of 80 and BP 135/90 it would appear that the heart was doing very well, if a heart can ever do well with auricular fibrillation and enlargement. The respirations were quite rapid 32.

The investigative studies were interesting and the heart was not pushing the blood round very fast for some reason. The circulation time (De-



they could stage their own symphony

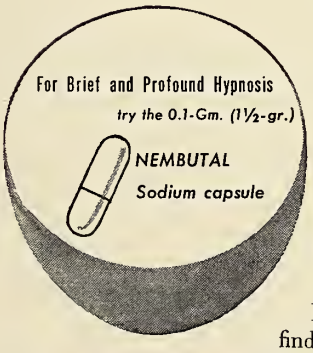
. . . all the patients who represent the 44 uses for short-acting

NEMBUTAL®

EVER WONDER WHY one drug should survive 23 years of clinical experience (when a lifetime for many is only about five)? Why it should account for 598 published reports? Or more than 44 clinical uses?

Short-acting NEMBUTAL (Pentobarbital, Abbott) is the drug. The reasons why?

1. Short-acting NEMBUTAL can produce any desired degree of cerebral depression—from mild sedation to deep hypnosis.
2. The dosage required is small—only about half that of many other barbiturates.
3. There's less drug to be inactivated, shorter duration of effect, wide margin of safety and usually no morning-after hangover.
4. In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.



How many of short-acting NEMBUTAL's 44 uses have *you* tried? You'll find details on all in the booklet, "44 Clinical Uses for NEMBUTAL." Write Abbott Laboratories, North Chicago, Illinois. Abbott

1-126

cholin) was 50 sec. and the normal from arm to tongue, as I presume this was, should be from 8 to 14 sec. Further there must have been some backing up in the venous system as the venous pressure is given as 222 mm. of water and the normal is from 60 to 120 mm. of water. This is also shown clinically in the cyanosis and distended neck veins. The vital capacity is also very low only 900 and the normal should be from 3000 to 4000.

The blood picture was not remarkable except that there was a moderate increase in whites and polys and probably a concentration. The prothrombin time was a little elevated. The non-protein nitrogen was within normal limits as was the blood sugar, namely 96 mgm. the normal ranging from 90 to 120. The total protein of 5.9 was also normal. The sodium equivalent of 127.8 is a little low the normal range being given as 139-152, also the chloride of 92 milliequiv. is slow, the normal range being 99 to 110. The carbon dioxide of 22.7 is a little low the normal being 25 to 29. The alkaline phosphatase of 4.6 units is probably normal. The phenolsulfonphthalein of 62% excretion shows relatively normal kidney function. The bromsulfalein test for liver function was 64% retention of dye; the normal is given as not more than 10% after 30 min. or too little to be read by the colorimeter. So there was definite impairment of liver function. The gastric acidity was said to be within normal range, and, as mentioned above the sputum was negative for acid fast bacilli or abnormal cells.

The gastric washings at two different times were positive for tumor cells, and there was a four plus guaiac test. This is a very positive finding and the tumor cells are assumed to be malignant cells. This is a finding that cannot be disregarded and the only way tumor cells could get into the stomach is from a gastric tumor or a tumor of the lung or bronchus and swallowed sputum (we are told that he did swallow sputum; however the sputum examination was negative for acid fast bacilli or abnormal cells). The urinary chlorides are low as were the blood chlorides. The electrocardiogram shows some cardiac deficiency and auricular fibrillation. However the heart disability was probably not enough to account for the condition of the patient, but one could say that it was not helping him very much.

The x-ray of the chest at this time was reported similar to the previous study of extensive diffuse linear mottled densities in the middle and lower portion with enlarged hilar shadows.

In the attempted GI series, there was a suggestion of an abnormality of the posterior wall of the stomach and a duodenal bulb deformity. The patient was very ill and this is not definite; however I think it should be considered.

The patient was very ill and died on the sixth hospital day. This was after a period of observation and treatment of less than a year.

SUMMARY

I would say that the clinical and laboratory findings of impaired venous circulation the excessive dyspnea and the clinical and radiological chest findings and the tumor cells in two of the gastric washings would lead to a diagnosis of malignancy of the mediastinum.

I would expect that this was a metastatic malignancy with extensive tumor and inflammatory involvement to the base and hila of the lungs and also probably the pericardium and also one would expect to find some liver involvement.

In spite of the relative absence of anemia and in spite of the normal range of gastric acidity the most likely primary focus would be the posterior wall of the lesser curvative of the stomach.

DISCUSSION AT MASSACHUSETTS GENERAL HOSPITAL

Dr. Allen G. Brailey: It is hard to know what to take up first when one is confronted with this welter of signs and symptoms. We might begin by seeing the x-ray films.

Dr. James J. McCort: On the initial chest examination the strand-like and coarse and finely nodular increase in density in both lungs is well seen. These changes extend outward from the hilus to the periphery and involve the greater portion of both lungs. There is no fluid in either costophrenic sinus. The heart is markedly enlarged to the left and right, and there is definite fullness anteriorly, suggesting right ventricular enlargement. A widening of the hilar shadows is seen, suggesting dilatation of the main pulmonary arteries. A film of the chest made one month after the first examination shows very little change except possibly a small amount of fluid in the right costophrenic sinus.

Examination of the gastrointestinal tract was unsatisfactory because of the severe dyspnea. The esophagus was normal. On one film a flattening of the posterior wall of the stomach near

the lesser curvature is demonstrated. There is also a slight constriction of the duodenal cap and a small diverticulum of the second portion of the duodenum.

Dr. Edward F. Bland: Are the bones all right?

Dr. McCort:: :The skull and long bones were not abnormal.

Dr. Brailey:: What about the possibility of a pathologic fracture two years before admission?

Dr. McCort: I can see no evidence of it.

Dr. Brailey: There is enlargement of the heart. Is it mostly right or left ventricle? The protocol says "left."

Dr. McCort: It is impossible to determine which ventricle is larger. There is definite right ventricular enlargement.

Dr. Brailey: Could the shadows in the lung be tuberculosis?

Dr. McCort: There is no evidence of cavitation or calcification to indicate tuberculosis.

Dr. Brailey: Do you think the shadows are due to embolization?

Dr. McCort: Multiple small emboli could produce similar nodular densities, but there are strand-like densities in addition to nodules.

Dr. Brailey: Have you ever seen metastatic carcinoma present this kind of picture?

Dr. McCort: A small percentage of metastatic carcinomas show a lymphatic permeation that is compatible with this picture.

Dr. Brailey: There is no interference with the bronchi as far as you can see—no obstruction?

Dr. McCort: There is no narrowing or obstruction of the bronchi.

Dr. Brailey: This man was said to have an "irregular" heart for two years. We may assume that it was fibrillating for at least that long. The heart was really enlarged; he had a grade II systolic murmur, and an abnormal electrocardiogram. The tracing was not inconsistent with infarction, nor was it inconsistent with left ventricular strain and digitalis effect. Would you agree with that, Dr. Bland?

Dr. Bland: It sounds like an aging heart to me—a non-specific electrocardiogram, showing the effect of digitalis, I would think.

Dr. Brailey: What was the nature of the defect? Did he have rheumatic heart disease? Somewhat in favor of that diagnosis is the long-standing fibrillation. But patients with rheumatic heart disease rarely live to seventy-two years of age, and no diastolic rumble was ever described. It does not seem reasonable to consider rheumatic heart disease here.

Did he have hypertensive and arteriosclerotic heart disease? The blood pressure was repeatedly reported as normal. If he had had hypertension in the past of sufficient degree and duration to result in a heart of this size, surely he would have been in severe congestive failure when the blood pressure fell to this level. But the evidence of congestive failure is not very impressive, even two weeks before he came into the hospital. He had marked dyspnea, to be sure, about which we will say more later, but he had no peripheral edema. The liver was not thought to be enlarged, and only transient rales were heard in the chest.

What else might reduce his hypertension other than heart failure? A failure of the adrenal cortex might do so. To be sure, little was said of fatigability, and there were no pigmentary changes recorded. But we wonder a bit about the adrenal glands because we are tantalized by the information that he was exposed to tuberculosis and the serum sodium was remarkably low, perhaps because he was on a low-sodium diet. He had not had it long, however.

Perhaps coronary-artery disease, without a large infarct but with widespread microscopic scarring of the myocardium, was a factor here. The electrocardiogram would not be inconsistent with this possibility. He is said to have had ill described pain, which may have been angina and was probably considered as such since he was given nitroglycerin.

The dyspnea troubled him greatly and certainly troubles me. There are many causes for dyspnea, but if we confine ourselves to those that occur in the chest, they can be doughly divided into pulmonary and cardiovascular. Of the vascular causes, disease on the arterial side of the pulmonary circuit should have resulted in cor pulmonale. He had a tremendous heart, and the right ventricle and right auricle were enlarged. I am not at all sure that he did not have cor pulmonale. He had little evidence of peripheral right-sided heart failure until the last few days of life. Trouble on the venous side of the pulmonary circuit should have resulted in pulmonary edema, of which we have little or no evidence. We are struck by the curious lack of parallelism between his increasing dyspnea and his apparent cardiac performance as reported. It seems certain that he did not have enough

cardiac failure per se to account for a vital capacity of 900 cc. and that he must have had some pulmonary disease as well. He undoubtedly had some senile emphysema, but I think this picture presented by his x-ray films is very curious, and I suspect that he had something else—either embolization, with marked widespread fine scarring of the lungs, or an endarteritis.

The evidence for cancer consists of hard nodules, which may have been metastatic supraclavicular lymph nodes, and two gastric washings containing tumor cells. Where shall we put this malignant lesion, which must have been either exfoliating or ulcerating? Is it fair to ask if these cells were epithelial in type?

Dr. Tracy B. Mallory: They were interpreted as that.

Dr. Brailey: The obvious answer is carcinoma of the stomach, but if we plump for carcinoma of the stomach, we have to make the diagnosis in the face of normal gastric acidity, a not impossible situation but nevertheless rare. The sputum contained no tumor cells on one examination. That does not exclude tumor of the lung. The patient had a productive cough, and it was noted that he swallowed most of his sputum. I do not see why he might not have swallowed the cells for that matter, although we do not usually look for carcinoma of the bronchus by doing gastric washings. Metastatic pilot glands in the neck occur secondary to carcinoma of the stomach, but they are even more commonly found secondary to bronchial disease. It is possible that we shall find no explanation for the low serum sodium. It was probably the result of the low-sodium diet or the edema. But if he did have damage in the adrenal glands by any chance, it is possible that they were knocked out by metastatic carcinoma—a rather frequent event in carcinoma of the bronchus.

On the whole it seems to me that the odds are in favor of the tumor being in the stomach, and I have not got the courage to put it anywhere else in the face of positive gastric washings. I have raised a number of questions that I cannot answer intelligently, but since I have to take a stand of some sort I will say that this man had arteriosclerotic heart disease and cor pulmonale, probably on the basis of many small emboli, and carcinoma of the stomach with metastases.

Dr. Alfred Kranes: I wonder if the pulmonary metastases may not have been tumor emboli, and if that was so, I think it is not impossible that carcinoma of the pancreas might produce that picture.

Dr. Brailey: I should have mentioned that, but tumor emboli occur in carcinoma of the stomach too.

Dr. Kranes: But much less commonly, I believe.

Dr. Brailey: That is right.

Dr. Bland: Does carcinoma of the branchus frequently metastasize to the supraclavicular lymph nodes?

Dr. Donald S. King: Quite commonly.

Dr. Mallory: Dr. Warthin, I believe you were interested in this case.

Dr. Thomas Warthin: I saw this patient in the Out Patient Department and was struck by the fact that he had heart disease basically. He definitely had abnormal lymph nodes, one of which was characteristic of the Virchow type associated with carcinoma of the stomach. Now seeing the x-ray films, which I had not seen before, I consider them typical of lymphogenous spread of carcinoma of the stomach, such as has been described by Mueller and Sniffen from this hospital.

Dr. Bland: Would sarcoid cause this picture in the lung?

Dr. King: It could; my opinion is that this was not sarcoid.

CLINICAL DIAGNOSIS

Congestive heart ailure.

Arteriosclerotic heart disease.

Carcinoma of stomach?

Pulmonary metastases?

DR. BRAILEY'S DIAGNOSIS

Cor pulmonale secondary to pulmonary embolization arteriosclerotic heart disease.

Carcinoma of stomach, with metastases.

ANATOMICAL DIAGNOSIS

Adenocarcinoma of pancreas, with extension to stomach and metastases to pulmonary lymphatics.

Generalized thrombosis of small pulmonary arteries.

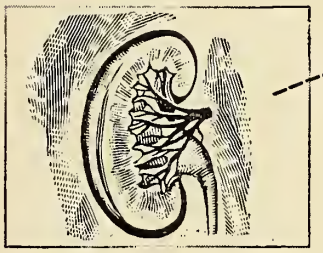
Cor pulmonale.

PATHOLOGICAL DISCUSSION

Dr. Mallory: Autopsy showed that this man had a cor pulmonale. The wall of the right ventricle measured 7 cc. in thickness; the left ventricle was normal. The lungs showed diffuse involvement of all the lymphatics with tumor. In a search for the source of the tumor

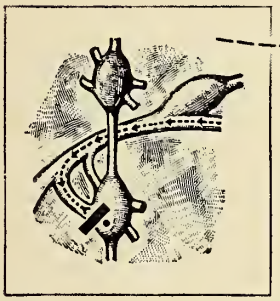
Regitine®

(phentolamine methanesulfonate Ciba), preferred in the diagnosis of pheochromocytoma, the cause of the most common form of hypertension of *known* etiology. The injection of this *adrenergic blocking agent* affords an accurate test that is relatively safe, and can be simply performed by any physician, unassisted, in his office.



three new agents in the control of hypertension

Complete information can be obtained by writing to the Medical Service Division, Ciba Pharmaceutical Products, Inc., Summit, New Jersey.



Esomid®

chloride (hexamethonium chloride Ciba), a potent oral hypotensive agent, may be particularly valuable in those patients with severe hypertension which has failed to respond to Apresoline. Esomid acts as a *ganglionic blocker*, inhibiting the transmission of impulses through all autonomic ganglia.



Apresoline®

hydrochloride (hydralazine hydrochloride Ciba), an agent of choice (for use) in the treatment of hypertension. This orally effective antihypertensive is believed to act *centrally* to produce a gradual, sustained decrease in blood pressure while increasing blood flow through the kidneys.

2/1907M

Ciba

an ulcerated lesion was found in the stomach. A large mass of tumor was found in the region of the pancreas, which at the time of autopsy was interpreted as lymph nodes surrounding the pancreas rather than a primary tumor of the pancreas itself. The subsequent microscopical examination showed that the acinar cells of the pancreas were totally replaced by tumor from end to end of the organ, and I believe that was the primary site. Invasion of the stomach was secondary, but since the secondary tumor had ulcerated into the lumen there is no reason why tumor cells should not be found in the gastric washings. On microscopical examination of the lungs it became evident that nearly all the arteries were surrounded by dilated lymphatics filled with tumor cells and that the majority of them also contained organized thrombi. In only a small number of vessels were tumor cells present within the intra-arterial thrombi, so that tumor embolism was unimportant.

There is no way that I can say from the anatomical findings whether the arterial thromboses, which were old enough to be completely organized, were independent of the carcinoma or secondary to it. I am inclined to think it was secondary, but I cannot prove the point.

Dr. Kranes Did you find thrombosis present in the areas where there was no tumor, or was it so widespread that you could not tell?

Dr. Mallory: The thrombosis was limited to small vessels, and virtually all of them were surrounded by tumor.

Dr. Bland: What we saw in the x-ray films was the lymphatic system of the lungs?

Dr. Mallory: Pulmonary lymphatics in normal conditions are so collapsed that they are scarcely visible. In this lung an artery was surrounded by four or five lymphatics, each so distended with tumor as to be of diameter equal to that of the artery.

LOGIC AND LANGUAGE IN MEDICAL WRITING

Good books are available on scientific writing in general and on medical writing in particular. Apparently not enough emphasis, however, has been given to the process that should precede the writing and follow the finding of the substratum of the writing. This process is careful and thorough logical thinking.

In an article on Chicago's philosopher Mortimer Adler (*Time* [Mar. 17, 1952]) we read: "Like a Socratic traveling salesman, he has moved up and down the country, talking to the young and causing acute attacks of thought in thousands of college students who scarcely ever thought of thinking before." Although thorough thinking does not seem to be one of the popular functions of human beings, acute attacks of thinking should at least precede any kind of scientific writing, and proper language should bear witness to the thinking process. This is lacking in statements such as "preventive geriatrics may well be started in patients no older than 20," or "the patient had had acute retention for twenty years and had been forced to catheterize himself daily." If preventive geriatrics should start at 20, why should not preventive pediatrics start before conception? It is only a matter of semantics to call the latter eugenics and the first plain medicine. When an author of a recent article in the *Journal of the American Medical Association* distinguished between a primarily "physiological" and a primarily psychological illness, he forgot that an illness is never physiological but always pathological.

Objectionable wording may result from lack of logic or linguistic knowledge. The first is well illustrated by a reviewer's criticism of Russell Brain's book on *Disease of the Nervous System* (*J. Am. Med. Assoc.*, 148, 1455 [1952]). The reviewer takes exception to the term "pseudobulbar palsy" because there is nothing "pseudo" about this palsy. He overlooks the fact that "pseudo" in this usage refers to bulbar and not to palsy; hence the correct and generally used term "pseudobulbar palsy." The reviewer overlooks the fact also that spastic spinal palsy is not called "pseudospinal palsy" because this palsy *is* caused by a spinal lesion, as contrasted with "pseudobulbar palsy" which is *not* caused by a bulbar lesion.

Lack of linguistic knowledge is encountered in many medical papers. It is shocking to read that the word "allergy" should have been derived by von Pirquet from the Greek word "ergon" meaning "work," plus an alpha privative. Allergy actually is derived from *allos* ("different") and *ergon* ("work," "action"). *Afibrinogenopenia* literally translated means exactly the opposite of what the author had in mind—that is, it means that there is *no* diminution of fibrinogen.

If anyone criticizes an authors language, he

should be quite sure that his criticism is justified. In the anonymous review of Brain's book, the reviewer, in discussing the terms "paresthesiae" and "dysesthesiae," says "para means beside or added to" and "paresthesiae therefore imply an external stimulus." Far from it. *Para* is a Greek prefix denoting a departure from the normal, and *esthesia* (or, more correctly, "aesthesia") designates sensations of any kind, not merely those produced by external stimuli. For example, kinesthesia is not produced by external stimuli. The reviewer rejects term "muscle tone" instead of "muscle tonus." Using the word "tone" instead of "tonus" complies, however, with the usage in all textbooks and with the definition in Webster's Dictionary. In the reviewer's opinion there cannot be an "antibrachium," only an "antebrachium." Both terms, "antibrachium" and "antebrachium," are correct and are used interchangeably. Antibrachium is derived from Greek, and in this connection *anti* means "opposed to." Antebrachium is derived from Latin and means, literally, "forearm." The Basel anatomical nomenclature adopted this Greek version, "antibrachium."

The use of eponyms is unquestionably overdone. What name should we prefer, however, to the term "parkinsonism," to which the reviewer takes exception? Every student of medicine should be familiar with the term "Parkinson's disease," designating paralysis agitans, just as Babinski's name should remain attached to the most important reflex indicating a lesion of the pyramidal tract. These and similar eponyms are at least a minimum requirement for a knowledge of modern medical history. Why should the name of outstanding clinicians be forgotten if no one takes exception to much more offensive terminology, such as *Klebsiella pneumoniae, Escherichia coli,* or *Neisseria gonorrhoeae?* Purification of technical terminology should start by rejecting such horrible neologisms as "rubroblasts" or "rubrocytes," and should once and for all eliminate such frequent linguistic offenses as "pruritis" (pruritus), "lupus erythematosis" (erythematosus), or "lymphogranuloma venerae" (venereum). The other day I even read about a "hemorrhagia per ano" (anum) and about something ad "voluminem" (volumen). The man who coined the word "appestat" to designate the cerebral center regulating appetite (analogous to thermostat), or the one who used the term "pie syndrome" in the title of an article concerned with the syndrome of pulmonary infiltration with eosinophils has committed an inexcusable linguistic offense.

One might wonder at the motive for the unduly widespread tendency to use abbreviations in practically every field of verbal communications. Many people do not even know what some abbreviations they use stand for. Saving time cannot always be the motive.[1]

Julius Bauer
1680 Vine Street, Los Angeles 28, California

1. Bibliography has been omitted deliberately, for obvious reasons. It may be requested from the author.

Reprinted from Science, January, 1953.

FOR SALE

A Used Shampaine Table

Open Leg Type, Accompaning Airform rubber mattress and pillow — Reasonable Price

Call DAVID STATE, M.D.

Office Phone AL 8-2796 — Home Phone AM 6-4343

ARIZONA PHARMACEUTICAL ASSOCIATION, INC.

1953 ANNUAL CONVENTION

APRIL 12-15 — PHOENIX

"Fifty Years of Pharmacy in Arizona"

The PRESIDENT'S *Page*

CONVENTION TIME AGAIN

THE ARIZONA STATE MEDICAL ASSOCIATION WILL HOLD ITS CONVENTION APRIL 26TH THROUGH APRIL 29TH AT THE PIONEER HOTEL, TUCSON, ARIZONA.

PRESIDENT-ELECT HAYDEN AND HIS COMMITTEE HAVE ARRANGED A PROGRAM OF OUTSTANDING SPEAKERS THIS YEAR. MANY GUEST ORATORS HAVE BEEN INVITED AND MANY OUTSTANDING PHYSICIANS OF OUR OWN STATE WILL PARTICIPATE IN THE SCIENTIFIC PROGRAM.

THE EXECUTIVE SECRETARY HAS ANNOUNCED THAT ALL THE DISPLAY PLACES FOR EXHIBITS HAVE BEEN RESERVED.

THE WOMAN'S AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION WILL HOLD ITS ANNUAL MEETING AT THE SAME TIME. BOTH MRS. ENFIELD AND MRS. SCHOFFMAN ASSURE ME THAT A MOST INTERESTING PROGRAM HAS BEEN ARRANGED FOR THE WOMEN. THIS PROGRAM WILL INCLUDE, IN ADDITION TO THEIR REGULAR BUSINESS, SEVERAL OUTSTANDING SOCIAL FUNCTIONS. THE PRESIDENT'S BANQUET TO BE HELD ON APPRIL 29TH AND THE ANNUAL MEDICAL ASSOCIATION GOLF TOURNAMENT WILL HIGHLIGHT THE SOCIAL FUNCTIONS OF THE ENTIRE CONVENTION.

CONVENTION TIME MARKS THE CLOSE OF ANOTHER YEAR OF THE ASSOCIATION'S WORK. IT IS WITH A GREAT DEAL OF PLEASURE THAT I LOOK OVER THE PAST YEAR AND PROUDLY ANNOUNCE SOME OF THE ACCOMPLISHMENTS OF THE CHAIRMEN OF THE VARIOUS COMMITTEES. IT IS NOT POSSIBLE IN THE SHORT SPACE TO PRAISE AND NAME EACH AND EVERY ONE OF THEM, BUT ALLOW ME TO CALL TO YOUR ATTENTION SOME OF THE OUTSTANDING ACCOMPLISHMENTS WHICH WERE NEW AND ENTIRELY DIFFERENT THIS YEAR. OUR SEMINARS HAVE BEEN HELD FOR THE PAST TWO YEARS. THIS YEAR, UNDER DR. MELICK, THE INNOVATION OF THE TELEPHONIC SEMINAR WAS ADDED. THIS CONNECTED WINSLOW, PRESCOTT, PHOENIX, YUMA AND TUCSON AND PROVED TO BE A VERY ECONOMICAL MEANS OF DISSEMINATING MEDICAL INFORMATION. UNDER THE CHAIRMANSHIP OF DR. LAWRENCE, A TV PROGRAM, CALLED THE "M.D.'S NOTEBOOK" WAS ORIGINATED FROM KPHO-TV. THIS, IN THE FIELD OF PUBLIC RELATIONS, HAS DRAWN CONSIDERABLE FAVORABLE COMMENTS. THEN UNDER THE CHAIRMANSHIP OF DR. BREGMAN, THE CANCER COMMITTEE OF THE ARIZONA MEDICAL ASSOCIATION IN CONJUNCTION WITH THE AMERICAN CANCER SOCIETY WAS ONE OF THE OUTSTANDING SEMINARS OF THE ENTIRE SOUTHWEST.

I WISH TO TAKE THIS OCCASION TO THANK EACH AND EVERY ONE OF MY COMMITTEE CHAIRMEN AND THE MEMBERS OF THEIR COMMITTEES FOR THE WHOLE-HEARTED COOPERATION WHICH THEY EXHIBITED THIS YEAR. I HUMBLY THANK THE WHOLE ASSOCIATION FOR ALLOWING ME TO PRESIDE DURING THE PAST YEAR.

THOMAS H. BATE, M.D., President Arizona Medical Association

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 APRIL, 1953 NO. 4

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

EDITORIAL

DANGER FROM ASTEROL

Asterol (Roche) is a new anti-fungal drug, a benzothiazole derivative, which has proved to be highly effective in the treatment of various common superficial fungous infections such as tinea capitis, tinea cruris, tinea pedis, etc.

Attention is called to reports of toxic reactions which occurred in small children during topical therapy with Asterol. 1, 2, 3. These reactions, all of which occurred in children under four years of age, consisted of visual hallucinosis, depression of the functions of the sensorium, and tonic and clonic convulsions. Prompt recovery occurred in every case when use of the drug was discontinued. No deaths have been reported.

The possibility of such reactions makes it unwise for a physician to order the use of Asterol on small children. When used on limited areas in older children or adults, however, the drug seems to be perfectly harmless.

1. Wilson, J. W., Levitt, H., Harris, T. L., and Heiligman, E. M.: Toxic Encephalopathy Occurring During Topical Therapy With Asterol.
J.A.M.A., 150:1002, Nov. 8, 1952.
2. Hitch, J. M.: Neurotoxic Symptoms Following Use of Asterol Dihydrochloride.
J.A.M.A., 150:1004, Nov. 8, 1953.
3. Featherstone, W. M.: Convulsions Following Use of Asterol Dihydrochloride.
J.A.M.A. 150:1006, Nov. 8, 1952.

LETTERS TO THE EDITOR

ON THE SAFETY OF SUPERFICIAL LOW-VOLTAGE X-RAY THERAPY

To the Editor:

I wish to comment on the safety of superficial low-voltage x-ray therapy. We frequently hear remarks made by lay persons, and unfortunately also even by physicians, to the effect that superficial x-ray therapy is dangerous and should never be employed in benign dermatoses. Such remarks are indeed unfortunate, coming as they do from inexperienced and uniformed persons.

The plain simple truth of the matter is that superficial low-voltage x-ray therapy as employed in this day and age is not dangerous but is perfectly safe. To be convinced of this fact one merely needs to read the report of extensive studies by Sulzberger et al. (Arch. Derm. and Syph. 65:639-650, June, 1952.) These authors conclude from their studies of 1000 cases treated over a period of 20 years, that "There is no evidence that cancers, roentgen ulcers, or any

other dangerous sequalae are produced, even with the largest doses which most dermatologists today consider permissible for benign dermatoses (total 1400r.)"

These were careful and thorough studies. All physicians are urged to study this report completely. They would then be in a position to refute statements about harmful effects of x-rays. And they would then see that it is the obligation of the physician to recommend such treatment to many patients, rather than to withhold it because of ungrounded fears.

Superficial roentgen-ray treatments as administered according to standard accepted technics by experienced and careful operators are perfectly safe.

Louis G. Jekel, M.D.
Phoenix, Arizona

ITEMS OF INTEREST

LOOK AT THE FINGER NAILS

Pre-employment examinations are becoming more and more the order of the day. In many occupations the finger nails are important, and such conditions as absence, atrophy, extreme thinness, fragility, splitting, separation into layers, detachment from the nail bed and long standing infections are serious handicaps. In a paper published in 1947 in the Journal A.M.A., the writer gives in detail all the organs to be examined before engaging the worker, but the nails were not even mentioned. A recent article in Industrial Medicine and Surgery calls attention to the importance of examining the nails and recording their condition at the time of employment. Good descriptive notes should accompany the examination record. This will protect the employer against false claims of occupational lesions. (Ronchese, Industrial Med. & Surg., Feb., 1953).

W.W.W.

EXPERT TESTIMONY

Being called on to give expert testimony can be one of the most embarassing experiences a doctor undergoes. An article by McCord (Indust. Med. & Surg., Feb., 1953) is well worth careful study by any doctor who anticipates being called into court to give any sort of testimony. Do not say "it cannot happen to me" because you may be involved in an accident, or witness an accident, and there you are. In his professional capacity, a doctor may be called on to testify as a "material witness" by appointment of the judge; he may be asked to testify as an "expert witness." How to avoid the pitfalls of cross examination, of inadequate preparation, of the hypothetical question—are all discussed by Dr. McCord. Read it and profit.

W.W.W.

Heart Accidents and Compensation

When a workman suffers a cardiac catastrophe while at work, the question immediately arises as to whether this is a compensible injury or not. This problem was discussed in a panel discussion on Heart Disease and Industrial Medicine, reported in Industrial Medicine and Surgery, Feb., 1953, pp. 76-79. Mr. Wm. C. Hartman, an attorney of Cleveland, O., contributed the discussion on Compensation. He presented illustrations of what has been declared by courts to be injuries so far as heart cases are concerned. If a man is doing his usual and normal work and suffers a heart attack that is not an injury. If he is doing something unusual and has a heart attack, that is an injury. Falling, and suffering a heart attack because of the fall, is compensable. Some years ago, our Industrial Relations Committee were requested to decide an important question of this type. A janitor in the Capitol Building fell down a flight of stairs and was picked up dead. Up to the time of the fall he was doing his usual work. He was a cardiac case. Did his heart stop while he was doing his usual work—and the fall result because he was already dead? Or did the fall cause the heart to stop? In one case it would be non-compensable; if the other, his family would get death benefits. The Committee decided he was already dead before he fell.

W.W.W.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 15th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 15th OF THE MONTH.

Material arriving after that date will be published the following month.

TOPICS OF *Current Medical* INTEREST

RX,, DX., AND DRS.

By GUILLERMO OSLER, M.D.

There may be quite a bit about diseases of the lungs in this month's column, but that is because quite a lot is available . . . The Twelfth VA-Army-Navy- Conference of CHEMOTHERAPY OF TUBERCULOSIS was held in mid-February, and reported two weeks later . . . These conferences continue to be amazing. More than 270 specialists were in attendance, most of whom paid their own expenses! The conference idea is one of the first real ventures for the production of accurate data, by a comparison of methods, using pilot studies and then co-operative summation, and being bound by 'randomized' selection of patients and routines . . . The analysis of 85 papers gave the following items, —1. It is confirmed that three routines of treatment for tuberculosis by streptomycin and PAS are therapeutically equivalent. 2. The use of 1 gm of SM twice a week is adequate, but also conserves drug for more prolonged use before development of resistance. 3. Use of INH alone is abandoned, since use with SM and/or PAS delays resistance to it. 4. It is possible that INH-resistant bacilli may often not be virulent. 5. There is further evidence that bacilli recovered from closed necrotic lesions after long-duration chemotherapy are stainable but not alive at resection. This may be due to the drugs, but also to environment factors. 6. No final decision has been reached as to whether such 'healed' lesions should be resected. 7. Antibacterial therapy should not be interrupted before its conclusion, or before surgery, since re-treatment results are not as good, and resistance is more common, and complications at surgery are more serious and frequent. 8. Erythromycin, terramycin, and mycomycin, have little to offer against TB. Viomycin is not to be studied further. Aldinamide (pyrazinamide) should be saved for a few weeks brief usage, perhaps as a protection during surgery. 9. The use of SM, PAS, and INH together, in a 'triple-threat' regiment, is not as yet approved as the best routine, but is being studied, and some think it to be logically best from the point of effect and resistance. 10. The INH dose of 150 mg. per day seems as effective as 3000 mg., tho the latter is being studied further. 11. The "therapeutic target point" is considered to be closure of cavities by planigraphy, conversion of sputum by culture, and stability of x-rays for 6 additional months. Cases are to be treated to that point. 12. There shall be studies, by randomization, of pneumoperitoneum and rest therapy, with a basic routine of chemotherapy in use.

Two special notations should be made about the ISONIAZID DRUGS, one good and one bad . . . The tedious injection of streptomycin into the spinal canal of Tbc meningitis patients seems to be needless; the use of isoniazid by mouth, with its free passage from the blood into the spinal fluid, is more than equally efficient . . . Reports on the CNS stimulative effects of IPNH (iproniazid, or 'Marsalid') have now included a fairly high incidence of psychotic reactions, some of which have been persistent. We have seen one such reaction in a patient with an unstable psyche.

The most unique COMBINATION OF DRUGS, just on the market, is a combination of 50 per cent streptomycin and 50 per cent dihydrostreptomycin. It results from the theory that the neuro-toxicity of the former is mostly vestibular and the latter auditory . . . Practice has shown that, over the same period of time, the combination has far less toxicity than either. The total dose of each is only half, and it is the total dose which is the chief toxic factor . . . Squibb makes it as 'Distrycin,' but spoils it for some drug purists by also making it up with one or two kinds of penicillin.

Arizona does not shine in memberships in the American Board SUBSPECIALTY OF PULMONARY DISEASES—but then what state does? There are less than 120 who have been certified in the entire United States, and more than half of these were given diplomas at the start of the program in 1939 . . . Arizona has only two who are certified in Pulmonary Diseases. One, from Phoenix, was certified on his outstanding record in 1937. The other, in Tucson, was certified by examination in 1945 . . . Even tho certification in the subspecialty requires preliminary certification in Internal Medicine (a fairly rugged pair of exams), Arizona should have more members . . . Even without a university medical school as a stimulus we should do better. It is a top rank to aim at.

An interesting contrast was presented by Dr. Esmond Long in the John Bell TB Lecture which he gave at Hennepin County, Minnesota. He described THE DISEASE AS IT IS SEEN IN A BIG CITY (Philadelphia clinic (the Phipps Institute) to people in a state where the disease is more uncommon and minimal . . . It should be a shock to Minnesotans, who have taken some very lofty attitudes towards certain treatment and control methods. They reject BCG because it causes positive tuberculin tests, and they can resect most of the lesions because they are so small . . . Dr. Long's cases are still mostly far advanced. They still

have to live at home for months because of the lack of san beds. The Institute must try to control the disease by ambulatory or home chemotherapy, tho they know such a routine is faulty . . . Sounds like Snow White meeting the old witch.

ROUTINE ADMISSION X-RAYS seem to be very logical for patients who enter general hospitals. Papers continue to be published on the value to diagnosis. All of the hospital and TB groups advise it. The American Trudeau Society Committee for Program Development suggests to the N.T.A. that it should seek to promote such a program as its first future objective . . . Everybody is for it except the hospitals, apparently . . . A recent survey in Wisconsin gives only mild encouragement, since 22 hospitals have a program in use. However, only 110 of the state's hospitals replied; some of the 22 were filming only small percentages of the admissions; many hospitals do not yet examine their personnel members; and the increase in use of the method was only a small one in the past 5 years . . . There ought to be a law.

The Public Health Reports have contained sections on 'COMMUNITY-WIDE CHEST X-RAY SURVEYS,' with methods, records and reports, etc. Every step in the entire program was outlined, and it would seem almost inevitable that the results would come out the end of the machine in perfect order . . . The results from dozens of large or even huge surveys have been published. They are loaded with accomplishment and large figures, but an analysis of the follow-ups reminds us that the plan was run by humans, dealt with human patients, physicians, social workers, et al. They just don't move like digits. They can be careless, rebellious, get lost, and even sue the survey committee.

Forty years ago a famous public health slogan was "DON'T SPIT!" It has languished in favor of other approaches, and because the major reason (TB) is probably more often spread by closer contact . . . Prevention of other ailments could profit by a revival of the slogan "If You have sputum, DON'T SPIT! You may have something more than bronchitis or the tobacco habit." Desert (Valley) fever, if you live in the southwest or parts of California, for instance. Histoplasmosis, if you live in the right part of south central United States . . . personally I would applaud seeing a spitter have bad luck, such as slipping on a banana peel or getting a punch in the nose.

Dr. Harold Trimble of Oakland, California is usually annalyzing the favorable results of pneumoperitoneum; but he has recently (in Dis. of Chest) published the results of his pneumothorax cases . . . 'His cases' is the phrase used, since he only reports 'adequated' pneumothoraces, or those which have passed the barriers of 'no space,' 'inadequate space,' etc., to the point of having cavities absent and sputum absent or negative. Truly, as he admits, 'a picked group' . . . There is encouragement for those who favor the definitive surgical measures. Of 444 cases, 120 did not reach voluntary discontinuance. In the 277 voluntary D.C.'s, 45 had reactivations of the disease. There were 35 deaths . . . It is only fair to say that these patients had no regular protection by chemotherapy.

Dr. Cabot Brown of San Francisco has finally published his research on the BEHAVIOR OF AIR VOLUME in the pleural and peritoneal spaces during rapid changes in altitude . . . His methods were practical but at times bizarre, and make one envious of his imagination. One would think of using a pressure chamber, or even an airplane, but how many would use an elevator? His results indicate that Boyle's Law is not applicable to air applied in pneumo-therapy (no reciprocal relationship between gas pressure and volume) . . . Ten patients were able to tolerate 10,000 ft. altitude without discomfort. The pneumo pressures did not follow the predicted levels. Dr. Brown believes that patients who are comfortable at sea level can safely fly in pressurized planes.

Terramycin is now said to be effective in two situations where antibiotics with narrower spectrums have had some success. Unfortunately the criteria of success must of necessity be vague . . . 'Infectious asthma' is that which may flare following respiratory infections. Patients were given a supply of a dozen small doses, to be started if and when the wheezing began. Their asthma period was often shortened . . . Pertussis has been relieved in two respects—less whooping, and fewer secondary infections.

Any physician who hasn't seen the new method of advertising which PFIZER uses in the J.A.M.A should turn to the first portion of any recent journal at once. The 'SPECTRUM' is a series of ten pages, broken up into new items, illustrations, articles (baldness, salicylates, cough, oil and medicine.), an editorial, etc. . . . A few unobtrusive Pfizer advertisements are labelled and spotted in places where they do not interrupt . . . Really an amazing concentration of interest, and good taste, and uniqueness. Here's hoping they can swing it for a long time—and maybe swing some this way.

The Pfizer 'Spectrum' reports on a new personalized HOSPITAL PAGING SYSTEM, initiated by Charles Neergaard, a famous hospital consultant, and perfected by Al Gross, the inventor of the walkie-talkie. (It is now marketed for Royalcall, Inc., by the Standard Electric Time Co. of Springfield, Mass.) . . . Each physician picks up his own 12-ounce radio receiving set and slips it in his pocket as he checks into the hospital. The set is about 6x2x½ inches in size, and has the doctor's number on it . . . When a message is received for him by the telephone operator, she presses a button at his number. His set gives off

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix April, 1953

Question Quiz
Do you know the answers?

Q. How do doctors and hospitals benefit from the Hospital Benefit Association?

A. Surgical and hospital bills incurred by member-patients under their coverage are quickly, efficiently paid by the Association, thus cutting down paper work and collection problems of doctors and hospitals.

Q. Does the Association cooperate with doctors and hospitals?

A. Yes. The Association cooperates in every way possible. And it actively supports the standards of the medical profession.

Q. Are surgical fees paid to osteopaths by the Association?

A. No. HBA fees are payable only to duly licensed physicians, (M.D.'s).

Hospitals Welcome HBA Patients

When members of the Hospital Benefit Association go to a hospital for treatment, they are sure of receiving immediate attention. This prompt admission, of course, enables doctors to provide quicker, more effective treatment, especially in cases of emergency.

There are two important reasons for this fine, cooperative spirit:

(1) hospitals know that bills incurred by HBA members are seldom rejected because members are careful not to try to gain admission for conditions not covered under their memberships;

(2) hospitals appreciate HBA's quick, efficient and direct payment plan that relieves their staffs from collection problems.

Report to President Shows Big Gains in U. S. Health, Shortage of Doctors, Nurses

The recently issued report by the President's Commission on the Health Needs of the Nation is an outstanding source of information on America's health conditions. This 1,500-page report, entitled, "Building America's Health", covers every important phase of the country's health picture. Following is a summary of what the Hospital Benefit Association believes are some of the most pertinent facts in the report.

- Death rate from tuberculosis in the first half of this century dropped from 194 down to 27 per 100,000 population. Death rate from all infectious diseases dropped from 676 per 100,000 population in 1900 to 79 in 1949.
- Maternal death rates have declined from 61 per 10,000 live births in 1915 to 9 in 1949. Infant mortality during the same period decreased from 100 per 1,000 live births to 31.
- Heart disease, cancer and cerebral accidents head the list of death causes. Fatal accidents are fourth.

Need For More Medical Workers, Hospital Beds

- There are now about 212,000 physicians, including those retired.
- In 1952, U. S. medical schools graduated 6,100. Medical schools are unevenly distributed, giving people in some parts of the country much less opportunity for admission than others.
- If all parts of the nation had the same average physician-patient population ratio as New England and the Central Atlantic states, by 1960 we would need 45,000 more physicians than the predicted supply.
- There are now more than 365,000 active nurses, but the shortage by 1960 may exceed 50,000.
- Paramedical workers are in such short supply that hospitals report 18,000 vacant positions in 7 of the important paramedical fields.
- Provision of hospital care is now one of the ten top service industries.
- 6,600 registered hospitals have some 1½ million beds and admit more than 18 million patients annually.
- Using the Hill-Burton Act standard of one bed for every 220 people, we need about 700,000 more general hospital beds.
- Total expenses in 1951 for medical research were $180 million—an amount equal to three-tenths of one per cent of the nation's defense budget—and less than the amount spent on monuments and tombstones.

HATS OFF!

The Arizona Medical Association will hold its annual meeting, April 26-29. Since last year's convention, the Arizona medical profession has made many gratifying achievements.

The Hospital Benefit Association heartily congratulates the Arizona Medical Association and its members for such outstanding performance. And it extends its best wishes for a most successful meeting again this year.

HBA Articles Advise Members to See Doctors

The Hospital Benefit Association believes that when people are well-informed about health matters, they are more likely to seek prompt medical treatment when needed.

In keeping with this idea, the HBA regularly publishes health articles by leading doctors in its bi-monthly Bulletin. And the Association strongly urges members to "see your doctor" immediately if they have any symptoms of illness.

a weak buzz which only he can hear and which he must cut off at the instrument. He then answers the telephone and resets his buzzer . . . This is similar to the more cumbersome paging radios we have described here for use while on calls.

This is year-end SUMMARY TIME AT THE MAYO CLINIC, and the 'Proceedings' has several items of general interest . . . About 75 per cent of the patients diagnosed as having primary carcinoma of the stomach underwent exploratory operation. Gastric resection was performed on 60 per cent, and gastroenterostomy on 6 per cent . . . Vagotomy was done in 8 per cent of the operations for duodenal ulcer, with no variation in the past 4 years . . . Operations on the biliary system and pancreas were performed on 1767 patients, with a 'hospital mortality' of 1.3 per cent . . . Deaths in this series from pulmonary embolism were less, in part due to the more frequent prophylactic use of dicomarol, 48 hours after cholecystectomy . . . Hyrdocortone (compound F) has been used on many types of painful joints and bursae, with fairly good relief in the bursitis cases. Results in osteoarthritis are transient and poor.

The Joint Commission on Accreditation of Hospitals is 'in business' as of Jan. 1, 1953 . . . You may have missed the end of the ruckus which started a couple of years ago, when it seemed that one organization was about to hijack a procedure which had been the property of another. The end was quiet and diplomatic, and it looks like a 'good deal' . . . The American College of Physicians, the A.C. of Surgeons, the Am. Hospital Ass'n., the A.M.A., and the Canadian Med. Ass'n. are combined to do the job, with a certain number of votes apiece (3-3-7-6-1), a director (Edwin L. Crosby, M.D.,) and a headquarters in Chicago.

A suggestion that 'cat-scratch fever' could be due to (or mistaken for) tularemia comes from Connecticut . . . Woodworth reports a case, treated successfully with Terramycin, which developed agglutinins for P. Tularensis . . . Two of the other seven cases of tularemia in the state resulted from contact with cats, one from a scratch . . . This may be a coincidence, or could be a lead.



ANNOUNCING

Your Official Professional
Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Accident up to 5 years	$300 a Month for Sickness up to 2 years	$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses.
$2,500 Accidental Death	$10,000 Dismemberment & Loss of Sight	$5.00 a Day for Graduate Nurse, at home.

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 59 to 60—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY CO.

DWIGHT McCLURE
Telephone ALpine 3-1185

W. J. WINGAR
407 Luhrs Building, Phoenix

GEORGE B. LITTLEFIELD

YOUR GROUP ACCIDENT AND HEALTH PLAN

The result of our recent insurance survey showed that the majority of members favored Group Accident and Health Insurance on a statewide basis. The Medical Economics Committee surveyed available plans and selected the program of the National Casualty Company of Detroit, Michigan. The report of this Committee was unanimously accepted by your Council.

Three fundamental factors motivated your Council to approve this Group Accident and Health plan.

1. To offer Income Protection to all eligible members with THE SAME MAXIMUM BENEFITS TO EACH ELIGIBLE DOCTOR, regardless of past medical history.

2. To provide a contract which may remain in effect AS LONG AS THE MEMBER REMAINS IN THE PRACTICE OF MEDICINE.

3. To secure STATEWIDE protection thus SERVING ALL 14 COUNTIES ON THE SAME BASIS.

The Plan has been developed to offer our membership a service—and its purpose is the provision of a substantial emergency income to take the place of that lost when unforseen accidents and sicknesses occur. This is YOUR plan officially sponsored by The Arizona Medical Association, Inc.

ALL MEMBERS UNDER AGE 65 ARE ELIGIBLE FOR MAXIMUM BENEFITS OF $300.00 PER MONTH, REGARDLESS OF PAST MEDICAL HISTORY AND PRE-EXISTING CONDITIONS. THE INSURANCE MAY BE CONTINUED AS LONG AS A MEMBER IS IN ACTIVE PRACTICE. THERE IS NO AGE LIMIT FOR RENEWAL.

You have all received a letter and a brochure showing the details of coverage and rates together with an application. Your Council recommends that you take advantage of this opportunity and if you have not already taken the time to complete your application, please do so. This will attain a high place among the many services The Arizona Medical Association, Inc., offers to its members.

Thomas H. Bate, M.D.
President

PIMA COUNTY MEDICAL SOCIETY

On March 10th, 1953, the following physicians were elected to membership in Pima County Medical Society:

James McIlroy Fritz, M.D. Dr. Fritz is certified by the American Board of Surgery, and will do General Surgery, with a sub-specialty of Thoracic Surgery.

Delbert William Hess, M.D. Dr. Hess will do General Practice.

Ursus Victor Portmann, M.D. Dr. Portmann is certified by the American Board of Radiology, and will practice Therapeutic Radiology.

At our March 10th regular meeting we had a very excellent speaker in Louis J. Regan, M.D., LL.B., Legal Advisor to the Los Angeles County Medical Association. His subject was "Problems of Medical Ethics and Jurisprudence" and I can truthfully say I believe everyone enjoyed hearing him.

W. B. Steen, M.D.
Secretary-Treasurer
Pima County Med. Soc.

OBSOLETE DIATHERMY APPARATUS

After June 30, 1953, it is unlawful to operate nonconforming diathermy apparatus. The Federal Communications Commission has been most cooperative with the medical profession and manufacturers by extending for one year the deadline for replacing nonconforming diathermy equipment. After June 30, 1953, all outmoded diathermy equipment used for therapeutic purposes must meet the requirements of the Federal Communications Commission. Surgical diathermy apparatus is exempt.

Information coming to the Council on Physical Medicine and Rehabilitation indicates that there are a relatively large number of nonconforming diathermy apparatus being used in departments of physical medicine, in hospitals, in related institutions, and by physicians in their offices. To avoid a last-minute rush for equipment, physicians are advised to look into the available supply. A list of accepted diathermy apparatus may be obtained by writing to the Council on Physical Medicine and Rehabilitation at 535 North Dearborn St., Chicago 10, Ill.

Arizona Pharmaceutical Page

Prescription Facts For Your Information

TOTAL PRESCRIPTION VOLUME IN 1952 WAS $990,164,000 NATIONALLY—ARIZONA'S PORTION OF THIS WAS $5,493,291.75.

TOTAL NUMBER OF PRESCRIPTIONS FILLED IN 1952 WAS 419,447,000, AN AVERAGE OF 2,152 PRESCRIPTIONS PER DOCTOR, BASED ON THE 117,000 DOCTORS IN THE COUNTRY. IN ARIZONA WE FILLED A TOTAL OF 2,327,666 PRESCRIPTIONS FOR AN AVERAGE OF 8,254 FOR THE 282 PHARMACIES IN THE STATE (THIS DOES NOT INCLUDE MEDICATION AND PRESCRIPTIONS FURNISHED BY THE 15 MAJOR HOSPITAL PHARMACIES).

THE AVERAGE PRICE OF ALL PRESCRIPTIONS IN THE COUNTRY WAS $2.36, AN INCREASE OF 4.9 PER CENT OVER THE 1951 AVERAGE OF $2.25. BASED ON THIS NATIONAL AVERAGE, THE PHARMACIES OF THIS STATE RECEIVED AN AVERAGE DOLLAR VOLUME OF $19,479.75 DURING THE YEAR. THIS FIGURE ACCOUNTED FOR 22.9 PER CENT OF THE TOTAL VOLUME OF BUSINESS DONE BY EACH STORE.

THE RATIO OF REFILLED PRESCRIPTIONS TO NEW PRESCRIPTIONS FILLED WAS 36.3 PER CENT IN 1952.

1952 SHOWED A 9.3 INCREASE IN PRESCRIPTION WRITING WITH 25.1 PER CENT OF THE TOTAL PRESCRIPTIONS WRITTEN BY SPECIALISTS AND 74.9 PER CENT WRITTEN BY GENERAL PRACTITIONERS.

ANTI-INFECTIVES TOPPED ALL OTHER PRESCRIPTIONS DURING THE YEAR IN NUMBERS FILLED (18 PER CENT), FOLLOWED BY SEDATIVES (9.1 PER CENT), DERMATOLOGICS (6.9 PER CENT), ANALGESICS (6.4 PER CENT), AND ANTI-SPASDOMICS (6.3 PER CENT). THESE FIVE CATEGORIES ACCOUNTED FOR ABOUT ONE-HALF OF ALL PRESCRIPTIONS FILLED. THAT THE ANTI-INFECTIVES WERE LAST YEAR'S TOP PRESCRIPTION TYPE WILL SURPRISE NO ONE. THIS CATEGORY LARGELY INCLUDES THE ANTIBIOTICS AND THE SULFA DRUGS. BUT IT MAY COME AS A SURPRISE TO MANY OF YOU TO LEARN THAT THE SEDATIVES-HYPNOTICS CATEGORY TOTALLED NO MORE THAN 9.1 PER CENT OF ALL PRESCRIPTIONS FILLED. ANOTHER ITEM OF NOTE IS THAT EYE SPECIALISTS ACCOUNT FOR A GREATER PROPORTION OF ALL PRESCRIPTIONS WRITTEN IN THEIR FIELD (66.2 PER CENT) THAN IS CREDITED TO SPECIALISTS IN ANY OTHER FIELD. OF THE 26 PRESCRIPTION TYPES WE HAVE A BREAKDOWN ON, EXACTLY EIGHT CARRIED AN AVERAGE PRICE LAST YEAR HIGHER THAN THE NATIONAL $2.36 AVERAGE, BUT THESE EIGHT CONSTITUTED 40.8 PER CENT OF ALL PRESCRIPTION NUMBERS AND 56.6 PER CENT OF TOTAL PRESCRIPTION DOLLARS.

ANTI-ARTHRITICS AVERAGE COST WAS THE HIGHEST OF ALL PRESCRIPTIONS FILLED, AVERAGING $5.76 PER Rx. THIS WAS CLOSELY FOLLOWED BY THE ANTI-INFECTIVES AT $3.42, SEX HORMONES $3.38, THERAPEUTIC VITAMINS $3.37 AND ON DOWN TO NOSE PREPARATIONS WHICH AVERAGED $1.30.

WE HOPE SOME OF THESE FIGURES WILL ANSWER MANY OF THE QUESTIONS YOU MAY HAVE IN YOUR MINDS REGARDING PRESCRIPTION PRICING. SHOULD YOU WISH ANY FURTHER BREAKDOWNS, ON ANY TYPE OF MEDICATIONS, WE SHOULD LIKE TO HAVE YOU CONTACT OUR ASSOCIATION OFFICE. THE NATIONAL FIGURES USED CAME FROM VARIOUS SOURCES ASSEMBLED BY THE AMERICAN DRUGGIST MAGAZINE, AND, WE BELIEVE, ARE QUITE FACTUAL. THE ARIZONA FIGURES WERE ASSEMBLED BY THE STATE BOARD OF PHARMACY FROM OUR INDIVIDUAL STORES. THE PHARMACISTS OF ARIZONA ARE DEEPLY APPRECIATIVE OF THE SUPPORT THEY HAVE RECEIVED FROM THE MEMBERS OF THE MEDICAL FRATERNITY AND WANT THEM TO KNOW PHARMACY WILL CONTINUALLY STRIVE TO MERIT THE CONFIDENCE REPOSED IN THEM.

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY BASAL METABOLISM

R. Lee Foster, M.D., Director John W. Kennedy, M.D., Radiologist
W. W. Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

AMA REVISES THE "ESSENTIALS OF AN APPROVED INTERNSHIP"

An Advisory Committee on Internship, appointed by the Council on Medical Education and Hospitals in the fall of 1951, conducted a study in the past year reviewing the internship in its broadest aspects. As a result of its study the Advisory Committee recommended revisions in the "Essentials of an Approved Internship" which were ratified by the AMA's House of Delegates in December.

Among the changes in the requirements for hospitals offering intern programs were the following: Approval by the Joint Commission on Accreditations of Hospitals; bed capacity increased to 150, excluding bassinets; annual admissions increased to 5,000, exclusive of the newborn, and the autopsy rate increased to 25 per cent.

Under these revisions the Council will approve rotating and mixed internships and straight internships in these specialties—internal medicine, pediatrics and surgery. Straight internships in pathology and obstetrics-gynecology will no longer be approved.

The revised "Essentials" became effective January 1 for new approvals. The autopsy rate of 25 per cent became effective for all hospitals January 1.

A.M.A. News Notes

Registered (Arizona) Pharmacist
Wants Hospital Work, or will finance, Install and operate Ethical Prescription Shop In Clinic, Hospital or Physicians' Group.

FOR INFORMATION WRITE
Arizona Medicine Journal
424 Heard Bldg.
112 N. Central Avenue
Phoenix, Arizona

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

AMA TO CONTINUE STUDY OF DOCTOR DRAFT LAW

The AMA's House of Delegates voted in December to "continue to support whatever measures are necessary to provide essential medical care to the armed services."

The House further authorized and directed the Board of Trustees and the Council on National Emergency Medical Service (1) to follow closely all developments both national and international which might affect the quantitative requirements for medical officers in the armed forces, and (22) to support legislation to provide the number of medical officers required to care adequately for the health needs of the uniformed armed forces.

The House recommended that the President of the United States be requested to defer any call-up of priority 3 physicians under Public Law 779 until the Selective Service System and the Department of Defense have completed processing all physicians in priorities 1 and 2, except for physicians in those groups whose deferment is essential to the nation's health.

Careful study also is to be given in the ensuing months to—physical requirements for medical officers so that physicians with physical defects may be utilized; more effective recruitment methods for career personnel in military medicine; greater use of civilian physicians and hospital facilities in the care of both military and non-military personnel and their dependents; uniform conditions of service to avoid undue competition for medical personnel, and consideration of an equitable point system in the induction of physicians into the armed services.

RADIUM and RADIUM D+E

(Including Radium Applicators)

FOR ALL MEDICAL PURPOSES

Est. 1919

Quincy X-Ray and Radium Laboratories

(Owned and Directed by a Physician-Radiologist)

Harold Swanberg, B. S., M. D., Director

W. C. U. Bldg. Quincy, Illinois

Park Central Medical Building

Phoenix

Five Fifty West Thomas Road

See for yourself the many features offered the Medical profession in a building designed exclusively for professional occupancy.

Your inspection invited—For appointment telephone AMherst 6-8416

E. A. Hamilton, Designer and Manager

A Limited Amount of Space Available

Date of occupancy June 1st, 1953

Insidious Stranglehold On Medical Freedom

In the Foreign Letters section, page 313, of this weeks' (January 24) A.M.A. Journal, there is a very disturbing article which relates how the medical profession in Argentina has lost its last remnants of freedom.

It is tragic that physicians practicing in a so-called republic so close to the United States find their wrists shackled tighter than probably anywhere else in the world, with the possible exception of Russia.

The article states that last year the Argentine congress passed a law authorizing President Peron to reorganize the National Academies of Medicine, some of them more than a century old. The reason: all institutions must conform to the ideals of the Peronistic revolution.

The article contains this disheartening paragraph:

"From now on the academies are no longer free corporations, but institutions directly submitted to the President of the Republic. The last remnant of academic freedom in Argentina thus appear to have been swept away."

Continuing, the article says:

"The police can oblige any physician to assist a patient if he has refused to do so. The physician cannot leave the city or stop his professional activities without permission from the Public Health Ministry. . . . The physician must obey all the orders on his medical service issued by the professional colleges, the professional corporations, or the Ministry of Health. All infractions of the law or lack of obedience will be punished by fines, imprisonment (one to six months), or retirement of professional license.

"A new law on the exercise of the medical profession was approved by the house and the senate of the province of Entre Rios and promulgated by the governor. The new law of 316 articles has produced surprise and alarm in the medical profession of Argentina. . . .

"The present rules for all scientific societies provide that 15 days or more before the meetings take place, there must be requested permission from the police to whom there must be sent the list of speakers and the title of papers to be reported. A policeman, sergeant, or officer of the police is present during every scientific meeting. Up to now all medical societies have obtained this permission in due time and have functioned without interference of any kind. Recently, however, some other important cultural institutions have not been allowed by the police to have their meetings, and for this reason their activities have stopped."

A.M.A. Secretary's Letter

In very special cases

A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N.Y. 54

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

Complete set of Orthopedic Books for sale.
Reasonable

RALPH E. MUELLER, M.D.
1000 E. Camelback Road
Phoenix, Arizona

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

ATTRACTIVE OFFICE SUITE FOR RENT
Suitable for Doctors and Accountants Offices
Available In June

J. CITRON, D.S.C.
311 W. McDowell Rd. – Phoenix, Arizona

Woman's AUXILIARY

NURSE RECRUITMENT

The recruitment of nurses is a new project which the Woman's Auxiliary to the American Medical Association has promoted this year on a national, state, and county level. The project was entered into because our country is faced with an appaling shortage of nurses. Both military and civilian population are affected by this shortage.

Since the Woman's Auxiliary is in such close contact with the medical profession it is only natural that they should work on the program in their own community.

Arizona is far ahead of many of the states in the program, because they have been quite active for the past five years. A nurses loan fund was established in 1950 on a state level and loans were available which were adequate for a training period of 3 years. This Loan Fund has stimulated great interest in some counties, and intensive search has been instituted to find girls who were worthy of the scholarship.

For the last two years, Gov. Pyle has proclaimed a State Nurse Recruitment Week. At this time many hospitals have "open house" inviting Junior and Senior high school students to attend. Usually the Supt. of Nurses or Hospital nurse explains the requirements for students entering the nursing school and positions awaiting their graduation. This is not limited to girls alone. Young men are also asked to participate as there is indeed a lack of male nurses.

Five of the seven auxiliaries in the state have organized "Future Nurses Clubs." These clubs are established in the freshman year of high school so that the student will have the required credits for entrance into an accredited nursing school.

The Maricopa Auxiliary and the Nurses Association sponsored and made a float which appeared in the Salad Bowl on New Year's Day. "Career with a Future" was the theme. It was most effective with a hugh replica of a nurses cap and a diploma. Consciousness of the need for nurses and of the career of nursing was established in the minds of many people by this effort. Interest can be stimulated in civic, professional and women's organizations by sending good speakers from the Medical Auxiliary or nurses speaking bureaus to promote a scholarship within their group. There are many worthy girls who do not have the means to further themselves in this profession, who would be greatly helped by the scholarship and in turn contribute to the honorable profession of nursing.

Mrs. Roy Hewitt,
State Chairman, Health Education
Tucson, Arizona.

INVITATION TO PHYSICIAN'S WIVES

To All Physician's Wives:

I believe there must be an appealing way to issue an invitation. But I can't seem to find it. You deserve the best. You give the best. Every County Auxiliary, in turn, has gone out of it's way to welcome State Officers this winter. The effort has not been in vain. We have found an understanding in working and playing together. A warm friendliness has resulted. As our good friends now we invite you to the Annual Meeting.

With senses alive to beauty, someone planned the Medical Convention for the heady month of April. How well timed. School is still in session, so Mothers CAN get away. Spring is in the air so Mothers WANT to get away. Do come. The evening will be real fun. And the days reports will make you real proud when you learn the amount and kind of business carried on by mere women.

Cordially,
Ruth E. Schoffman
State President

Monty Lebert's Nursery
And
Flower Shop
Artistic Flower Arrangements for Every Occasion
• • •
Assorted Potted Plants
Dish Gardens
Beautiful Ceramics
We Specialize In Planter Box Materials
531 W. Thomas Road Phone CR 4-0211
Phoenix, Arizona

U. C. MEDICAL LIBRARY

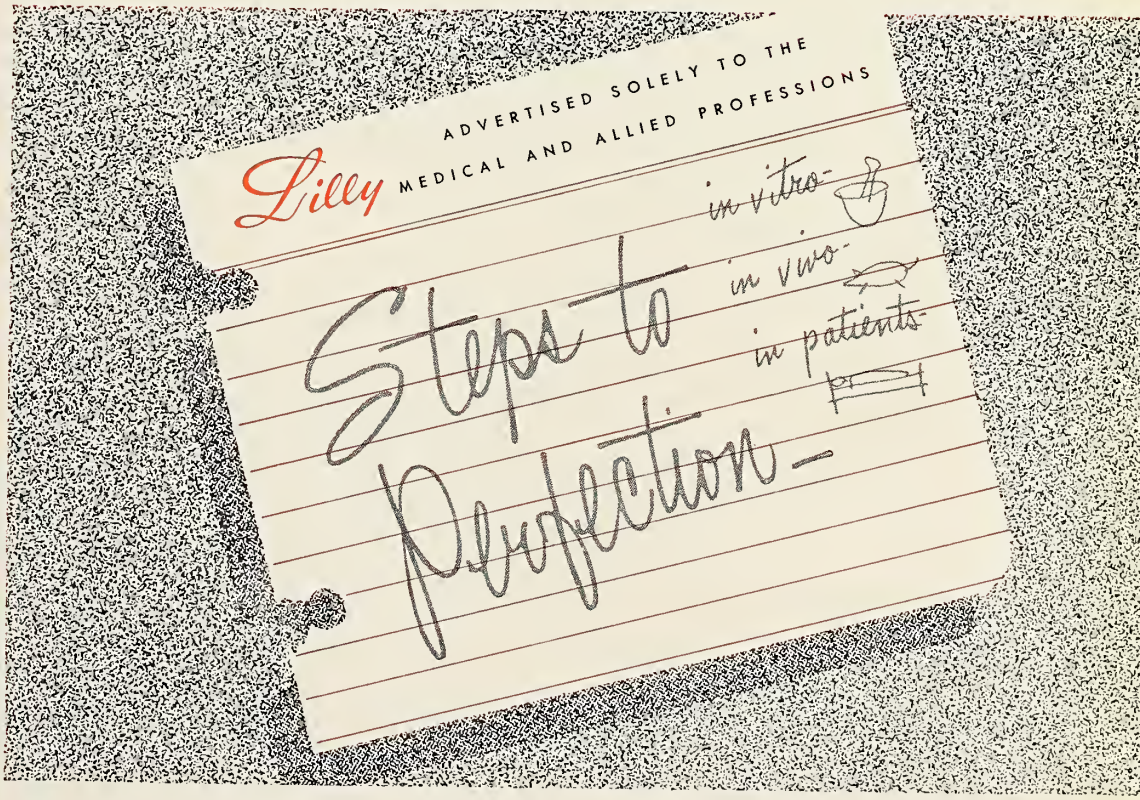
MAY 29 53

San Francisco

Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA



VOL. 10, No. 5 • MAY, 1953 • TABLE OF CONTENTS — PAGE V

Parke, Davis & Company announces a new series

THEME: "In the hands of you[r physician]"

TIME



SATURDAY EVENING POST



LIFE



ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 5 MAY, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI
PRESIDENT'S & SECRETARY'S COUNTY MEDICAL SOCIETIES VIII

ORIGINAL ARTICLES

CHRONIC GASTRITIS 161
Marcy L. Sussman, M.D., Phoenix, Arizona; Benjamin Copleman, M.D., Perth Amboy, New Jersey

A COMPARISON OF PERITRATE(R) AND OTHER ORGANIC NITRATES IN THE TREATMENT OF ANGINA PECTORIS 171
Edward Phillips, M.D., Los Angeles, California

BASIC SCIENCE SEMINAR

PHYSIOLOGY OF THE PANCREAS (EXOCRINE) 174
Jean-Louis Picard, M.D., Tucson, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 185
Ben P. Frissell, M.D., and Louis B. Baldwin, M.D., Phoenix, Arizona

THE PRESIDENT'S PAGE

NEW PRESIDENT OF THE ARIZONA MEDICAL ASSOCIATION, INC. 196
Edward Hayden, M.D., Tucson, Arizona

EDITORIAL

STEP BACK BUD, I'M A FIRST AIDER 197

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS. 201
Guillermo Osler, M.D.

UNDER THE SUN 198

BOOK REVIEWS 200
"The Literature on Streptomycin" and "Living with Cancer"

SYMPOSIUM ON HEART DISEASE 202

LEGISLATIVE COMMITTEE 1952-53 ANNUAL REPORT 204
Jesse D. Hamer, M.D., Chairman, Phoenix, Arizona

MALPRACTICE INSURANCE SURVEY 208
Robert Carpenter, Executive Secretary, Arizona Medical Association, Inc.

RESOLUTIONS NOS. 2 and 4 210
Arizona Pharmaceutical Association

ARIZONA'S GUEST OF HONOR AT WORLD MEDICAL EVENT 212
Clara S. Webster, M.D., Tucson, Arizona

A.M.A. INAUGURAL CEREMONY WILL BE BROADCAST BY A.B.C. 213

WOMAN'S AUXILIARY

PUBLIC RELATIONS 211
Mrs. John K. Bennett, Chairman, Tucson, Arizona

DIRECTORY

PATHOLOGIC LABORATORIES XXV
SANATORIUM DIRECTORY XXVI
DRUGGISTS DIRECTORY XXX
PHYSICIANS' DIRECTORY XXXIII

Published monthly by the Arizona Medical Association. Business office at 426 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 — 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
15 East Monroe, Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Hilary D. Ketcherside, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Otto E. Utzinger, M. D., Ray.

HISTORY & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; W. R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Myron G. Wright, M. D., Winslow; Leo Schnur, M. D., Grand Canyon.

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., [illegible]

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Guy B. Atonna, M. D., Douglas; Joseph Bank, M. D., Phoenix; David E. Engle, M. D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy E. Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Frederick W. Knight
Safford
Vice-Pres. ..... Mrs. Noel Grey Smith
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 5 MAY, 1953

Original ARTICLES

CHRONIC GASTRITIS

Marcy L. Sussman, M.D.
Phoenix, Arizona
Benjamin Copleman, M.D.
Perth Amboy, New Jersey

Introduction

The diagnosis of chronic gastritis ordinarily is suggested first by the radiologist. His impression is based upon the finding of thick, fairly rigid mucosal folds often with a disturbance in peristalsis. To the radiologist with experience in the disease, the pattern is fairly characteristic. In general, however, the changes even when marked are not pathognomonic. The possibilities which must be considered are cancer, lymphoma, syphilis, gastritis and normal stomach. The differential diagnosis may require gastroscopy, exploration and/or resection.

The need for this sequence of confirmatory procedures is not unique to chronic gastritis but is often required in other gastric diseases. Chronic gastritis is unusual, however, in that there is no general agreement as to whether there is a specific symptomatology. Indeed, the disease is said by some (20) to be of little clinical significance. It is generally admitted that there is no constant correlation between roentgen, gastroscopic and pathologic findings.

In this report, we shall present cases that we consider to be examples of chronic gastritis with especial reference to their X-ray findings and their clinical course. In these individuals, we were not able to find any alternative explanation for the gastro-intestinal symptoms.

Radiologic Features

It must first be emphasized that there is no constant and precise mucosal pattern which characterizes all normal stomachs. The size, shape, direction and thickness of the folds vary from individual to individual, and even in the same patient from time to time. There is usually a general similarity of pattern under similar conditions in the same person but the occasional misinterpretation of normal variations must be anticipated.

Generally normal folds are freely flexible and are easily obliterated under manual manipulation or by the compression cone. The form, width, and numbr of folds depend on many factors. Forssell (4) believes that the volume of the relief pattern depends on the inflowing and outflowing fluids in the submucosa due to local variations in the filling of the vessels and tissue spaces. Templeton (17) believes that turgescence alone does not play a significant role in the variations of the folds in the normal stomach, but that it is important in the pathologic states. Forssell showed that the muscularis propria, and not the muscle coats of the stomach, was the chief factor in producing the motion and form of the pattern. The thickness of the mucosa itself plays a minor role in the alteration of the folds except in the rare case (see Case 4).

Any disease which affects the submucosa will alter the appearance of the mucosal pattern. Included, therefore, are submucosal infiltrating cancer, the lymphomas, and the more severe nonspecific inflamatory conditions called gastritis. In these diseases there is an increase in the cellular and fluid content of the submucosa with more

Presented at the Annual Meeting, Arizona Medical Association, 1952.

or less fixation of the mucous membrane to the muscle layers resulting in more prominent folds with loss of pliability. Generally, however, the rigidity produced by neoplasm is more marked than by other conditions.

The enlargement of the folds may be generalized or may be localized and confined to the antrum, the greater curvature, or to the fundus. The more frequent localization is in the antrum. The mucosal folds cannot be obliterated by pressure, either manually or with the use of the use of the compression cone. The enlargement and rigidity of the folds may be slight so that their caliber is only slightly above normal, and they do not quite fade out with pressure. This minimal change may not be detected even by the most experienced examiner. When enlargement of the folds and rigidity are marked, the folds may show as defects even with the stomach filled. These cases frequently show a small amount of secretions in the stomach before the examination is begun.

In gastritis, as Windholz (19) and others have pointed out, the folds have sharp borders and their course remains unchanged even in the vicinity of the most marked changes. There is ordinarily no abrupt change as in carcinoma. The abnormal folds course in the same direction as the normal folds, a fact which Berg (2) considers to be important in the differential diagnosis from carcinoma.

One helpful sign in the differential diagnosis is the demonstration of an identation into the base of the duodenal bulb when it is due to hypertrophy of the pyloric muscle. Golden (5) corroborates in his own material the statement of Serck-Hansen (15) that gastritis is invariably present with hypertrophy of the pyloric muscle. Peristalsis is apt to be irregular with localized spastic contractions which are not altered by antispasmotics and are often found unchanged on repeated re-examinations.

CASE REPORTS—GENERALIZED THICK FOLDS

Case 1. *J. E. MSH* 516443

This 50 year old white male was admitted to the Mount Sinai Hospital, New York, on Feb. 9, 1944, stating that he had been well until one month before admission. At that time he began to develop a sense of fullness and bloating in his abdomen. He had pain under his left costal margin and belched frequently. Although these symptoms were somewhat relieved by food, they were constantly present. He has been constipated since the onset of his illness. A loss of 10 lbs., in weight was attributed to restrictions in his diet.

On examination, it was noted that he swallowed air and belched constantly. The liver edge was palaple 2 fingers breadth below the costal margin. Gastric analysis showed 15 cc. of residual secretions. There were 15 units of free HCl and 65 units of total acid after histamine. The blood count was normal. The stool guaiac test was negative. The blood Wassermann examination was negative.

A small para-esophageal hiatus hernia was found roentgenologically. A small amount of secretion was present in the stomach. There was a deformity of the antrum with marked exaggeration and irregularity of the mucosal folds. There was no evidence of mucosal destruction. The pylorus was elongated and the base of the duodenal bulb was indented. There was no delay in gastric emptying.

Gastrosocopically, the mucosa of the body was found red and covered with an excess of clear mucus. The rugae were thickened to about three times normal. The folds were grossly nodular. Those on the posterior wall were trans-segmented. Two small fresh hemorrhagic areas were seen. The folds in the antrum were also markedly exaggerated. The entire antrum was irritable with active duodenal regurgitation. The mucosa in the antrum was edematous and smooth. The impression was hypertrophic gastritis.

It was decided to have this patient return in one month for re-examination.

He was re-admitted on April 17, 1944. His gastro-intestinal complaints had disappeared with an adjustment in his diet and the omission of 10 cups of coffee and 2½ packs of cigarettes daily. The liver margin was 1 finger's breadth below the costal margin. The stool guaiac test was negative. The gastric analysis was normal. All laboratory studies were normal. The roentgenologic and gastroscopic appearances were unchanged. He was discharged with a diagnosis of hypertrophic gastritis.

The deep indention into the base of the duodenal bulb and the uniformity of the enlargement of the folds throughout the stomach were consistent with a diagnosis of gastritis.

Comment

The presence of large gastric folds, is not, in every case, an expression of gastritis. The thickness of the folds depends, as has already been stated, on such factors as the tonus of the muscu-

laris mucosae, the thickness of the submucosa and in particular, upon the tonicity of the muscularis propriae. An empty stomach may show apparently large folds. With slight distention these are smoothed out and can then be recognized as normal. The gastroscopic appearance results from the superficial appearance of the mucosa, and, as Templeton states, does not depend necessarily on the condition of the deeper structures. It is possible, therefore, that despite a normal gastroscopic appearance, large folds which are not obliterated by pressure may be due to gastritis which is mainly interstitial in character and the surface manifestations of abnormality are not recognized gastroscopically.

Case 2. M. K. MSH 506903

This 49 year old white man was admitted complaining of dull constant epigastric pain which was completely relieved by food, severe anorexia, and weight loss of 40 lbs. These symptoms had been present for one year. The pain was often associated with nausea and vomiting. He gave a history of suffering from a duodenal ulcer 15 years before which had healed by diet. This patient has been a known cardiac for many years but has never been decompensated.

He looked thin and chronically ill. There were systolic and diastolic murmurs at the apex. The heart was enlarged. The liver margin was 1 finger's breadth below the costal margin. His blood pressure was 108/60. There were no masses nor tenderness in the abdomen. The gastric analysis showd no free acid. His hemoglobin was 60%. The ECG was consistent with the clinical diagnosis of mitral valvular disease. The other laboratory studies were normal.

Roentgenologically, there was an irregular filling defect on the greater curvature aspect of the posterior wall of the upper half of the stomach (Fig. 1). The rugae were markedly exaggerated in the lower half. The antral portion of the stomach also showed some rigidity of the mucosal pattern, and a patulous pylorus. The roentgen diagnosis was carcinoma and it was considered likely that there was neoplastic involvement of the entire stomach. At the operation 3 weeks later the stomach was found to normal in appearance. The interior of the stomach showed a normal mucosa.

About 3 weeks after the operation, the roenegenologic examination was repeated and showed no change from the first appearance. The patient refused gastroscopy and was signed out against advice.

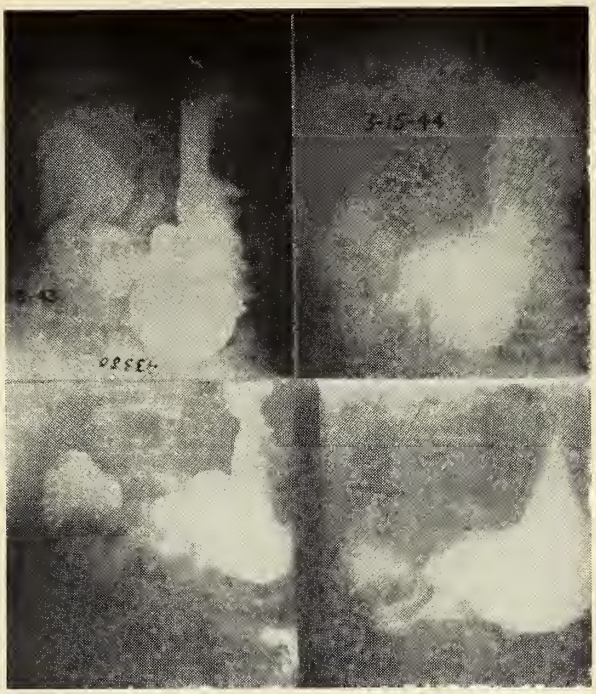


Fig. 1. Case 2.

a) There is an irregular filling defect on the greater curvature aspect of the upper half of the stomach, and the rugae were exaggerated in the lower half. This appearance was thought to be due to an extensive cancer. The pyloric canal was patulous. At operation three weeks later the stomach was normal.

(b) On March 15, 1944 a re-examination showed the process in the stomach to have increased in degree and extent. Gastroscopic examination showed the mucosa to be normal.

He was re-admitted on March 11, 1944. He had been well until 2 weeks before admission when he developed right upper quadrant pain 2 hours after meals. This pain was not relieved by food and was associated with nausea and vomiting. Presystolic and systolic apical murmurs present. The epigastric incision was well healed. His hemoglobin was 66% and his red corpuscles 4,100,000 per cu. mm. of blood. The stool guaiac test was negative. Gastroscopy performed on March 13, 1944 showed the fundal mucosa to be orange-red and smooth. The rugae were markedly exaggerated and prominent even after the stomach was completely distended. The pre-pyloric and antral folds were prominent. Reverse peristalsis could be seen. The gastroscopist's impression was irritable spastic stomach with nor-

mal mucosa. Roentgenologic examination on March 15, 1944 showed the antral deformity to be more marked than in 1943. The defect, it was felt, could be accounted for by the marked hyperplasia of the antral mucosa perhaps with ulcer. There was a considerable gastric residue at 6 hours. In view of the previous exploration and since the lesion had progressed only moderately in the past year, it was thought likely that hypertrophic antritis was present, probably on the basis of ulcer. The patient's symptoms disappeared during his hospital stay.

Comment

Usually, in gastritis the involvement of the mucosa and submucosa is not limited to the stomach but extends also to the duodenum. The finding therefore, of large coarse folds in the duodenum is a strong indication that the large folds in the stomach may be due to gastritis. Lymphosarcoma is the only other disease that is likely to cross the pylorus. Because this man was in at least potential cardiac failure, the mucosal alterations might have been due to this cause but the course of the disease makes its remote possibility. The presence of secretions, if pyloric obstruction can be excluded, is also significant.

Case 3

The patient, a 25 year old colored male, states that he began to vomit almost immediately after meals about 1½ years ago. There was no hematemesis. He soon began to have pain about 30 minutes after meals. The pain was griping in character, and was localized to the epigastrium. It came on at night occasionally. The pain was relieved by food, milk, or soda. Because a gastrointestinal examination was reported as normal on July 14, 1944, he was returned to duty. On October 14, 1944 the pain and vomiting became so severe that he had to be hospitalized. Another gastro-intestinal examination showed the folds of the stomach to be enlarged and rigid. No ulceration could be seen. The duodenal folds were also enlarged. The diagnosis was chronic hypertrophic gastro-duodenitis. He was much improved by diet. Gastroscopy showed a large amount of free fluid to be present. Because of the poor cooperation of the patient, and the presence of the fluid, only an occasional glimpse of the mucosa could be had. This showed the mucosa to be hyperemic and the folds to be considerably enlarged.

Comment

Involvement of the stomach and duodenum together is by no means confined to gastritis. Martin (10) found that in 15% of his cases of lymphoblastoma of the gastrointestinal tract the disease had involved the gastric and pyloric sides of the pyloric valve. In 75% of the cases where the lymphoma involved the lower end of the stomach, the duodenum was also involved. Martin was unable to make a differential diagnosis from gastritis. At operation, however, the cases of gastritis showed a reddened inflamed mucosa, while those of lymphoblastoma were a dirty gray in color. In 70% of the cases the pathologist described the rugae as being thickened and distorted. In half of these the distortion was so great that the rugae resembled cerebral convolutions.

Weber, Kirklin and Pugh (18) in an article reviewing their cases of lymphoblastoma primary in the gastro-intestinal tract, state that they have no suggestions as to how to distinguish lymphoblastoma roentgenologically from other types of neoplastic lesions.

In syphilis, the most comon pathological finding is a granulomatous pliable induration of the gastric wall (11). The pliability is due to the fact that the induration is largely marked edema of the submucosa, which is thickened out of all proportion to that of the other layers of the gastric wall. Fibrosis is also a prominent feature. Moore and Aurelius (13) state that in 70% of their cases, the lesion was prepyloric, median or hour-glass in 22%, and in 8% diffuse. The latter group simulated scirrhous carcinoma even to the extent of presenting a patulous pylorus. Meyer and Singer (12) state that the striking disparity between the roentgenologic and the palpatory size serves to distinguish this lesion from cancer. Cancer is usually more extensive than the roentgenologic examination indicates, while in syphilis there may be a surprising lack or even absence of findings compared to the roentgenologic evidence.

The association of a tumor mass with generalized thickening of the gastric folds is uncommon. Such findings are probably most common with lymphoma, but may also be simulated by polyposis of the stomach. Rarely, it may be found in hypertrophic gastritis.

Case 4

This 32 year old white male first began to complain of discomfort and epigastric pain coming at irregular intervals and relieved by alkaline powders in May 1941. His symptoms subsided during the following six months and he was sent over-

seas in December 1941. In April 1942 he noticed a return of his discomfort. He also began to have nausea and vomiting at this time. He was admitted to a hospital in June 1942, at which time an examination of his stomach demonstrated a tumor mass in the fundus. He was transferred to the hospital in November 1942, and the diagnosis of a gastric tumor was confirmed. The mass was sharply circumscribed, smooth, and the size of a lemon. There was marked thickening of the mucosa of the remainder of the stomach (Fig. 2). Because of the age of the patient the appearance was thought to be due to a lymphoma. The possibility of a leiomyoma also was suggested. The gastric analysis revealed no free HCl and a low total acid. These findings were confirmed by repeated examinations. The patient was explored and the tumor mass and the thick rugae found. Because the surgeon felt that the mass was adherent posteriorly, only a biopsy was done. The report on this specimin was summarized as "chronic inflammation." He was observed for several months, during which time the appearance of the stomach was virtually unchanged, and then transferred to Walter Reed General Hospital. There the laboratory and roentgenologic findings were confirmed. A diagnosis of lymphoma or leiomyoma was also made. The patient was subjected to subtotal gastrectomy and esophago-gastrostomy, but died on the fifth-postoperative day.

The final diagnosis was chronic hypertrophic gastritis with tumor formation due to localized swelling of the mucosa and submucosa. This case has been reported in detail by Hinkel (7).

Comment

The stomach in somewhat similar cases described by Freedman, Glenn and Laipply (3) were increased in size and consistency, had unusually thick walls and cut with increased resistance. They state that "by gross examination alone it was difficult to exclude diffusely infiltrat-

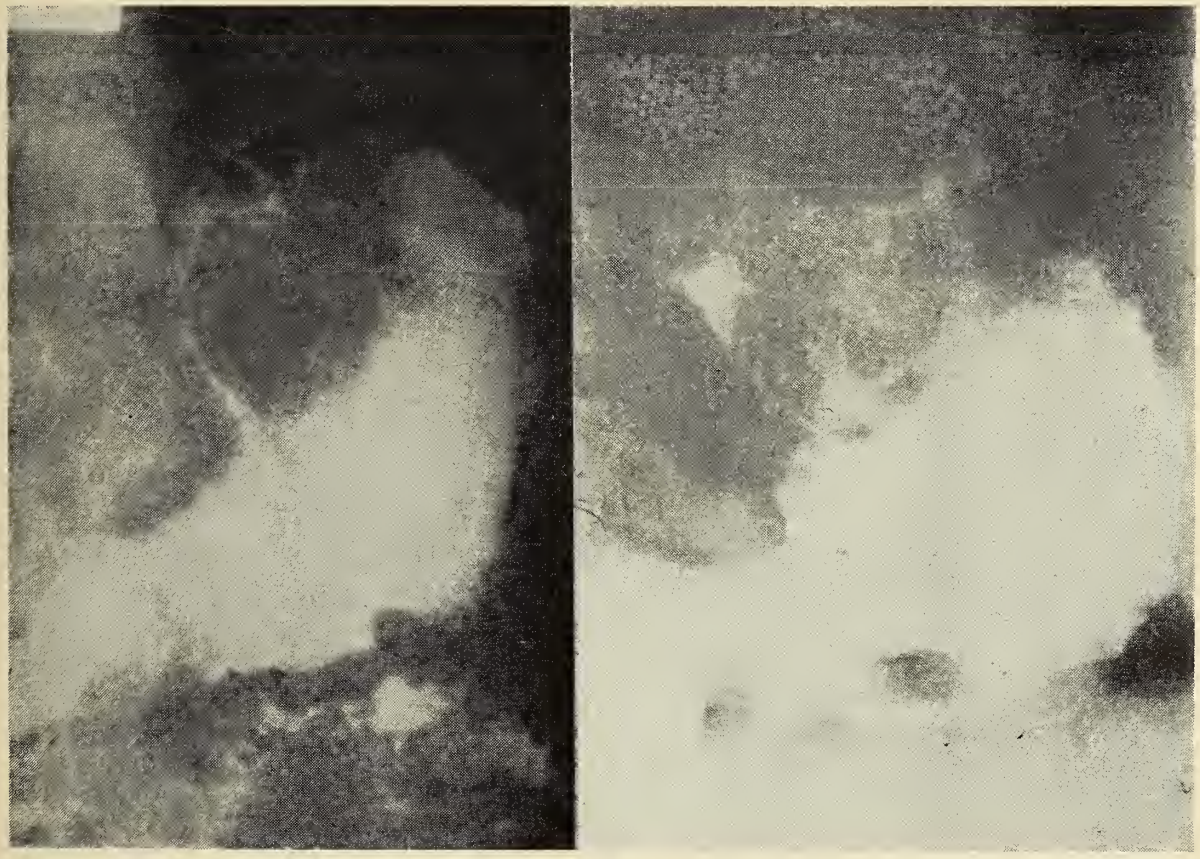


Fig. 2. Case 4.

On July 23, 1942 (left) there is demonstrated a large tumor mass in the cardia. On November 12, 1942, a "spot film" shows no change in the size of the mass. Its surface shows shallow lobulation. Note the large folds in the body of the stomach. The diagnosis was thought to be leiomyoma or lymphoma. The appearance is due largely to hypertrophic gastritis.

ing lesions like those of scirrhous carcinoma, lymphblastoma and syphilis." This is in agreement with the expressions of Martin, and Weber, Kirklin and Pugh in their articles on lymphoblastoma of the gastrointestinal tract.

Localized Thick Folds

When the thickening of the folds is localized, a correct diagnosis may be more difficult. Since most carcinomas of the stomach start in the antrum, the finding of thick folds in this region is an ominous roentgenologic sign, especially if the evidence persists over a period of several weeks.

The enlarged folds may end abruptly towards the body of the stomach but usually fade off gradually. They may take an oblique, almost transverse course, or may run parallel with the antral axis. Pearl and Brunn (14) have shown cases of gastritis with folds so large and segmented that the appearance of multiple nodular growths was created, simulating polyposis or cancer. When the folds are enlarged they are also fewer in number. The involved area is usually rigid so that the folds may be apparent even through the filled stomach. The lumen of the antrum may be narrowed and markedly distorted. Even moderate changes will produce irregularities in the contour of the antrum when the stomach is filled perhaps due to constant spastic contractions. Peristaltic waves pass through the diseased area poorly if at all. Gastric retention is a frequent finding.

Case 5

A white male aged 30 was admitted on March 16, 1945 complaining of pain in the epigastrium. This had been present intermittently for 9 months. He drank alcoholic liquors moderately. His past medical history was otherwise inconsequential. He began to have sharp pain in the right upper quadrant and epigastrium, and occasionally diffusely in the abdomen, in July 1944. The pain, which would come on daily from one to three hours after meals was usually associated with pyrosis, nausea, and occasionally vomiting. The ingestion of milk or ice cream would relieve the pain, but the usual meals would not. Tincture of belladonna afforded the greatest relief. This episode lasted for two months. From the end of September until December 1944 he was careful to avoid greasy or spicy foods, and was free of symptoms. In December, during his voyage to England, he had another episode of severe diffuse pain, coming on from one to two hours after meals. He was admitted to a hospital and thence sent to a General Hospital. The physical examination was negative except for tenderness over the mid-epigastrium and the right upper quadrant. Gastric analysis showed normal free and total acid. On April 2, 1945 there was 3 plus occult blood in his stool. The blood Kahn and Wasserman reactions were negative. The blood count and urine analysis were normal.

Roentgenologically the antrum of the stomach was irregular in contour. The folds were very prominent and stiff. Peristalsis passed through this region but moderate rigidity was apparent. Mucosal relief studies showed what appeared to be thick wavy segmented folds in at least the distal half of the stomach. The duodenal bulb was contracted, and its folds were large and distorted. There was no evidence of an ulcer in the stomach or duodenal bulb.

Gastroscopy showed the antral folds to be more prominent than usual. The gastric rugae were large and had a cobblestone appearance on the greater curvature and posterior wall of the middle and distal portions of the body of the stomach. Some of the folds were markedly elevated and segmented. There were no erosions or hemorrhages. The diagnosis was chronic hypertrophic gastritis, moderately severe.

Comment

Konjetzny (9) believes that the erosive form of hypertrophic gastritis is confined to the antrum. He also thinks that it is found in every case of gastric and duodenal ulcer, and has termed it, therefore, "ulcer gastritis." Schindler (16) on the other hand, has seen it more often in the body of the stomach and denies that it occurs in every case of peptic ulcer. He believes that only a localized gastritis is seen in the beginning. After a few months the pain increases, and a rather large ulcer is found gastroscopically in the area of hypertrophic gastritis. A short time later, the ulcer disappears. A true ulcer never develops, he states, hence, ulcerative gastritis and chronic gastric ulcer are different entities. Benedict and Mallory found that the gastroscopist made most of his errors when gastritis was confined to the antrum.

Case 6—*J.G. Age* 52 *MSH* 453859

This patient has intermittent gastrointestinal complaints unrelated to food. He had lost 14 lbs. in the past 3 months.

Roentgenologically there was persistent narrowing of the gastric antrum with preservation of large but otherwise normal folds. There was a

persistent fleck of barium near the proximal portion of the narrowed site probably due to an ulcer. Roentgenologically this was considered due to gastritis and ulcer.

A sub-total gastrectomy was performed. The examination of the speciman showed an ulcer measuring 1.3 by 2 by .5 cm., about 3 cm. from the pylorus about the middle of the lesser curvature. The mucosa distal to the ulcer gave evidence of severe hypertrophic gastritis with considerable hyperemia and petechial hemorrhages.

Comment

The prominent roentgenologic features in this case were the marked changes in the antrum. Pathologically, the prominent features were the size of, and the induration about, the ulcer. This case is similar to Case 6 in that the abnormal folds ended abruptly. Because of somewhat similar roentgenologic features but differing etiology the following case is presented.

Case 7—S.E. MSH 524315

This 50 year old white male was first admitted on August 28, 1944, with a history of belching, epigastric distress, and occasional nausea and vomiting for about 6 months. He had marked anorexia and had lost about 15 lbs. in weight. There had been no melena, hematemesis or fever. The patient was thin. Th physical examination revealed no other positive findings. His blood count, urine analysis, blood urea nitrogen, total protein, CO2 combining power, ECG, BMR and sedimentation rate were normal. His Wassermann reaction and stool guaiac test were negative. Free HCl was obtained on gastric analysis after histamine.

Roentgenologically (Fig. 3) there was marked thickening of the antral folds which converged to a point on the posterior wall near the pylorus. The lesser curvature was shortened and the pylorus was eccentric in position. The findings were thought to be more consistent with a diagnosis of hypertrophic gastritis, although a neoplasm could not be excluded.

On gastroscopy the mucosa of the lesser curvature aspect of the prepyloric region was thickened and nodular, but normal in color. Peristalsis exaggerated the folds. The mucosa of the greater curvature of the antrum was normal. The rugae of the corpus were prominent, the mucosa was thickened and cobblestone in appearance. The gastroscopist suggested antral gastritis as a diagnosis, but could not exclude a neoplasm. The patient was discharged to be readmitted and restudied in 6 weeks.

He was readmitted on February 21, 1945 because of vomiting and tarry stools of 10 days duration. He had felt well until the onset of the present episode. He had lost 12 lbs. in wight. Except for the obvious loss of weight the physical examination was negative. The stool guaiac was 4 plus. All of his blood studies were again normal. Gastric analysis showed a high normal free acid and total acid. There was no blood in the gastric contents.

Gastroscopically, an ulcerated lesion with a yellow base and a thick everted edge was found

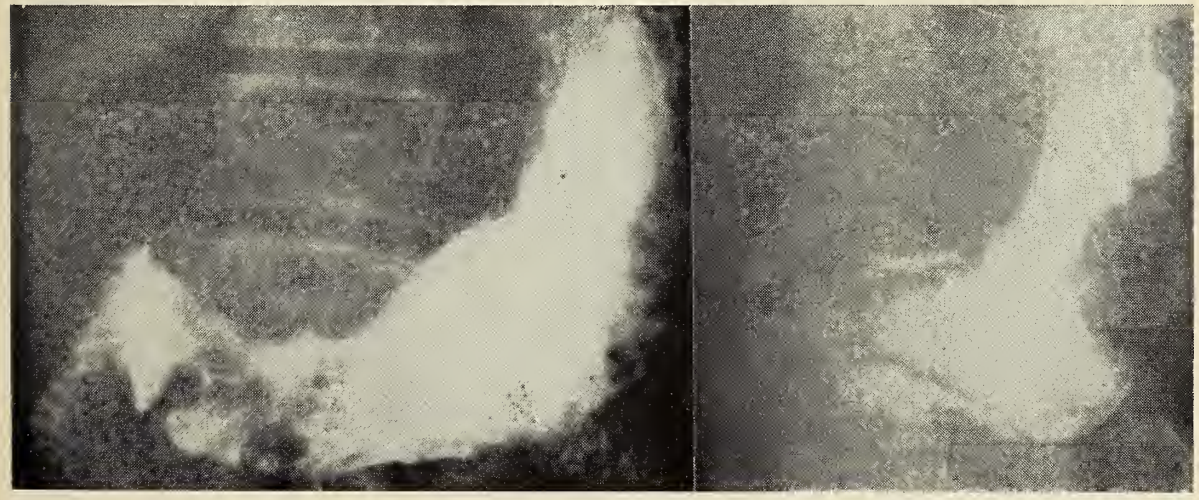


Fig. 3. *Case* 7.

(Left) The folds in the antrum are large and seem to radiate from a large ulcer crater. (right) Note the particularly large folds which are demonstrated. They are not continuous with the normal folds. This appearance was due to an ulcerating cancer.

on the greater curvature aspect of the pre-pyloric region. A thick ridge on the anterior wall extended to the lesser curvature. The diagnosis was cancer.

The patient signed out to be operated upon by his private physician and cancer was found.

The enlarged folds and the ulcer were the prominent roentgenological features in this case, much as in the previous case. The folds in this last case radiated for a considerable distance, going against the "grain" of the normal rugal pattern, and simulating the appearance seen in some benign ulcers. The roentgenologic appearance could not be differentiated from cancer.

Thick folds on the greater curvature

Normally the mucosal folds are more prominent on the greater curvature aspect of the body of the stomach, particularly when the stomach is not fully distended and is examined in the prone position. The greater curvature of the stomach is capable of greater distention than any other portion of the stomach. When the stomach is empty or incompletely filled, the gathering of the folds produces prominences in its contour. The sling-like muscle bundles which are seen on end in this region also contribute to the irregularity of the coutour.

These prominent folds, usually seen in a stomach with good tonus are always considered possibly abnormal by the fluoroscopist. It is only when the folds can be flattened by distention or smoothed out by manual manipulation, or by the weight of the barium suspension in the erect posture, that they may be disregarded.

When these folds become unduly prominent they may easily be mistaken for a neoplasm. Too many such cases have been operated upon under the mistaken diagnosis of cancer. When the folds are large they are stiffer than normal, and persistent in all studies, whether of the mucosa or of the moderately distended stomach. Occasionally one sees carcinoma simulating this picture, and the differentiation is extremely dfficult.

Case 8 *D.D.*

This elderly individual gave a history of diarrhea with blood in his stools for the past 5 years. He had lost 10 lbs. in weight. None of his other complaints were referable to his gastrointestinal tract. Roentgenologic examination by his physician disclosed a serrated greater curvature of the body of the stomach with thick folds which seemed to end abruptly at the midportion of the stomach.



Fig. 4. *Case* 7.

The serration of the greater curvature aspect of the body and fundus was believed to be due to cancer. At operation, only large folds were found. There was no evidence of neoplasm.

Fig. 4. A diagnosis of cancer was made. At operation, only large folds were found.

Thick folds which eventually disappear.

Case 9. A 27 year old white male was admitted on July 5 complaining of being tired and weak, and having pain in the stomach and gaseous feeling for 3 or 4 weeks. He had been in the Army for 28 months. He drank several glasses of beer a week, and smoked a half pack of cigarettes a day.

He had been given yellow fever vaccine on July 14, 1942, and developed hepatitis in September of that year. A roentgenologic examination of his stomach in February, 1943, was reported as normal (Fig. 5a). The reasons for requesting this examination do not appear on his chart. He was discharged to duty on March 31, 1943.

Soon after discharge he began to have a dull aching pain in his epigastrium and right upper

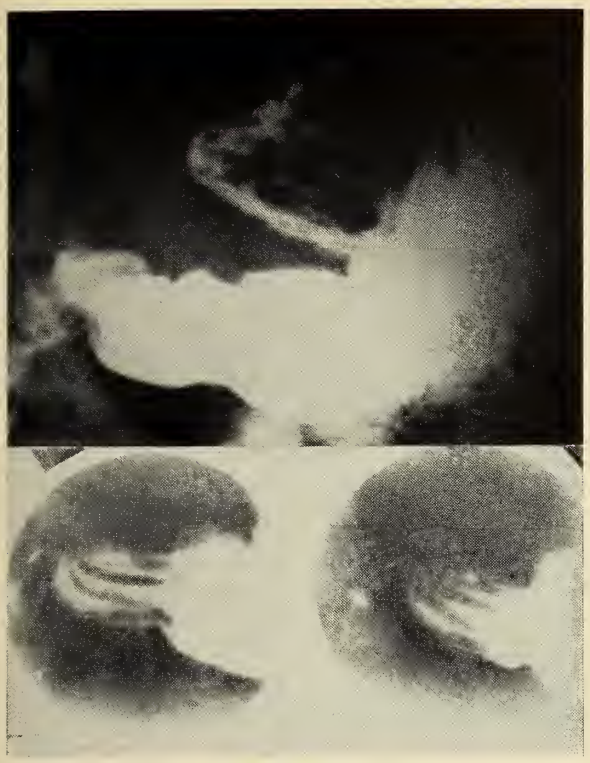


Fig. 5A.

Fig. 5. Case 9.
(a) On February 16, 1943 the gastric antrum was normal.
(b) To right; on July 14, 1943 the antrum was persistently conically narrowed and moderately rigid. Peristalsis did not pass through this area. On compression the antral folds were seen to be thick, sinuous and decreased in number. To left; after medical treatment, the antrum and its folds were seen to be normal on July 26, 1943.

quadrant. The pain usually, but not invariably, came on after meals. He had frequent attacks of nausea and vomiting. These symptoms were worse after fatty meals. His appetite was poor for the two weeks prior to his readmission. He had lost 4 lbs. in the three months following his discharge from the hospital. He did not notice anything unusual about his stools.

No unusual findings were elicited on physical examination. His liver and spleen were not palpable. On two occasions after his readmission the gastric analysis showed no free acid, and the highest total acid was 26. There was no occult blood in the feces. His blood count was 4,850,000 red corpuscles per cu. mm. with 95 per cent hemoglobin, 9,500 white cells and a differential count of 61 per cent polymorphonuclear leuko-

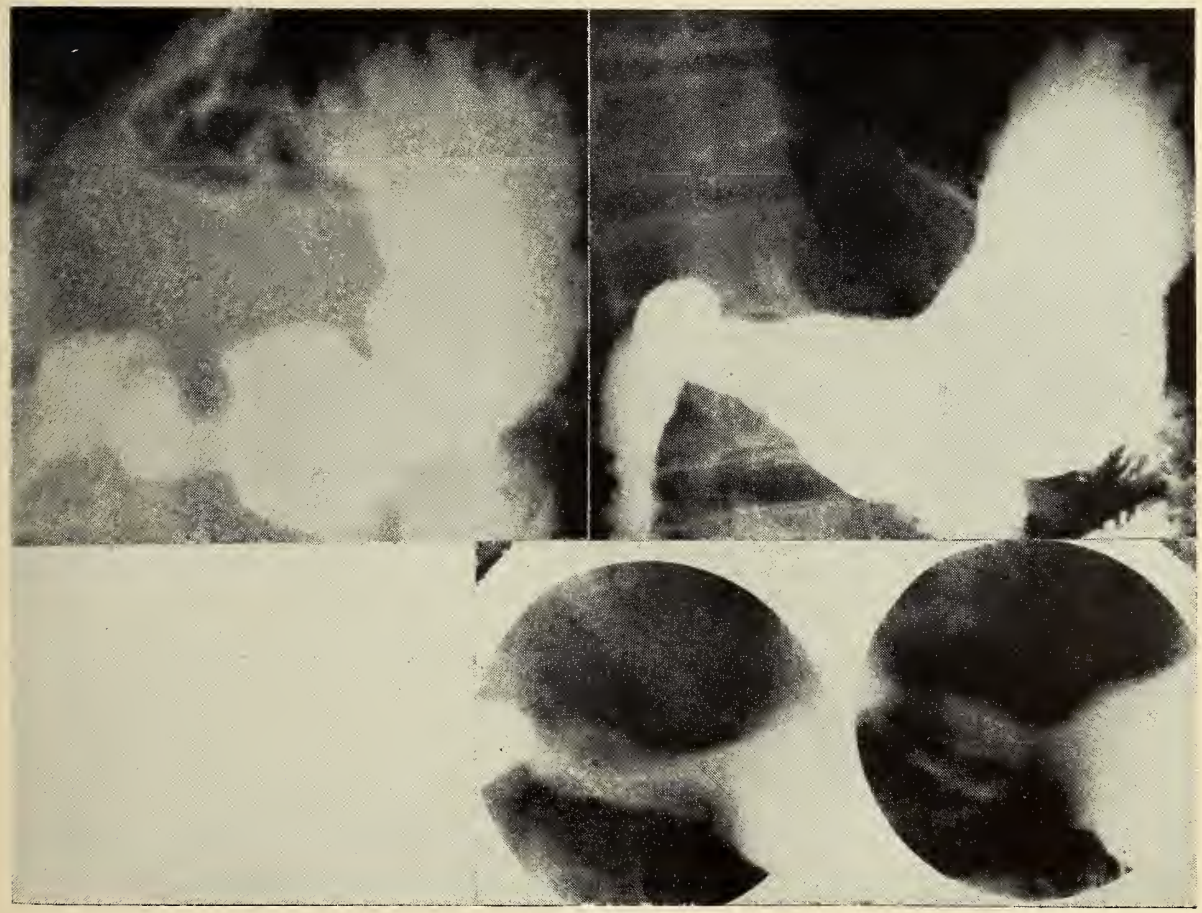


Fig. 5B.

cytes and 35 per cent lymphocytes. His icteric index was 7, and his blood Wassermann reaction was negative.

Roentgenologic examination of the stomach and duodenum (Fig. 5b) showed the gastric antrum to be persistently narrowed, somewhat rigid and smooth in outline, through which peristalsis did not pass. The antrum could not be distended to its normal caliber. The antral folds were decreased in number, thick wavy in outline, and somewhat rigid. In view of the history, particularly the absence of frec HC1 in the gastric secretions, an infiltrating submucosal lesion was suggested, possibly neoplasm.

Gastroscopy performed in July showed a diffuse gastritis-like lesion in the antrum, hypertrophic in type. The gastroscopist could not exclude a neoplasm, however. The patient was treated symptomatically for 12 days and then re-examined. At this time the antrum was normal in all respects (Fig. 5b). The mucosal folds were normal. The patient was discharged with a diagnosis of acute antral gastritis.

Comment

Gutmann, Beaugart and Hardel (6) reported a case with a similar roentgenologic appearance in a 28 year old male who had been drinking heavily. The antral folds were markedly thickened, hazy in outline and rigid. A diagnosis of infiltrating neoplasm was seriously considered but was discharged when, after two weeks of medical treatment, the folds and the antrum were found to be normal. Their final diagnosis was "acute edematous gastritis.'

In these cases of enlarged somewhat rigid antral folds, not associated with ulcer, one cannot, on the basis of a single examination, differentiate between cancer and gastritis, except that the mucosal folds in infiltrating submucosal cancer are often of normal caliber. Slow progression of the roentgenologic changes, despite treatment, does not serve to differentiate cancer from a benign lesion, as shown by case 2. Only definite regression in a short interval would justify a diagnosis of gastritis as against cancer. Pathologically there is an infiltration of the superficial aspects of the mucosa, mainly about the necks of the glands. Superficial hemorrhages and surface erosions may be present. Varying amounts of mucus may cover the inflamed surface. In severe cases the deeper layers may be involved. It is an acute exudative process which may be superimposed on other forms (1).

Of 9 patients with infectious hepatitits, Knight and Cogswell (8) found 7 with abnormal gastroscopic findings. These consisted of aphthous ulcerations and other aspects of superficial gastritis. The antrum was involved in all. The abnormal changes often extend into the fundus. Peristalsis was not interfered with.

Little is known about the roentgenologic appearance in superficial gastritis since the changes are most often too insignificant to produce roengenologic changes (17). Templeton quotes Berg as stating that considerable mucus, occasional rugal enlargement and hypermotility may be present. If there are abnormal folds which do not end abruptly, and which return to normal in two to four weeks, a diagnosis of gastritis can be made.

Summary

The range of variations in the caliber of the normal gastric rugae is considerable, and therefore open to roentgenologic misinterpretation.

It is most important to determine whether or not a cancer is present. It has been said that in gastritis the folds have sharp borders and that their course remains unchanged even when the changes are most marked. The abnormal folds course in the same direction as do the normal folds. There is no abrupt change as in carcinoma. We have seen exceptions to this rule, however.

The prominence of the mucosal folds depends chiefly on changes occurring in the submucosa. Hence any disease which will increase the volume of the submucosa will effect the appearance of the mucosal pattern. More importance should be attached to the loss of pliability (rigidity) than to change in size alone.

Generalized enlargement of the gastric rugae is probably most often due to gastritis. Swelling and distortion of the duodenal folds is usually also present. In some cases presenting this appearance the gastroscopic appearance of the mucosa may be normal, but there is evidence to suggest that there may be cases of interstitial gastritis in which the mucosa is not involved. Lymphoblastoma may also produce a generalized enlargement of the gastric rugae and duodenal folds.

When the rugal enlargement is localized, or when there is a complicating gastric ulcer, the differential diagnosis is hazardous. Laparotomy may be indicated to avoid neglecting a resectable cancer. Some of the cases of benign rugal enlargement which are localized are so like cancer

that any other diagnosis is hardly considered. The differential diagnosis must also include lymphoma and syphilis.

In the group of cases here reported, the patients complained of symptoms which could not be explained except on the basis of "chronic gastritis."

BIBLIOGRAPHY

1. Benedict, E. B. and Mallory, T. B. Relation of Gastroscopic and Pathological Findings in Gastritis. SGO 76: 129-135, 1943.
2. Berg, H. H. Rontgenuntersuchgen am Innenrelief des Verdauungskanals. Leipzig; Georg Thieme,, 1926.
3. Freedman, E., Glenn, P. M., and Laipply, T. C. Chronic Gastritis Simulating Gastric Carcinoma. Arch. Int. Med. 71: 23-37, 1943.
4. Forssell, G. The Role of the Autonomous Movements of the Gastro-intestinal Mucous Membrane in Digestion. Am. Journ. Roentgenol. 41: 145-165, 1939.
5. Golden, R. Antral Gastritis and Spasm. JAMA 109: 1497-1500, 1937.
6. Gutmann, Beaugart and Hardel. Un cas de gastrite aigue oedemateuse (fausse imag de cancer). Bull. et mem. Soc. de Radiol. med. de France 25: 432-434, 1937.
7. Hinkel, C. L. Hyperthophic Gastritis Simulating Intramural Tumor of the Stomach. Am. Jour. Roentgenol. 53: 20-27, January, 1945.
8. Knight, W. A. and Cogswell, R. C. Preliminary Observation of the Gastric Mucosa in Patients with Infectious Hepattis. JAMA 128:803, July 14, 1945.
9. Konjetzny, G. E. Zur Gastritisfrage. Wien. klin. Wchnschr. 46: 451-458, 1933.
10. Martin, W. C. Lymphoblastoma of the Gastrointestinal Tract. Am. Jour. Roentgenol. 36: 881-891, 1936.
11. McPeak, C. N. Syphilis of the Stomach. Am. Jour. Roentgenol. 43: 832-841, 1940.
12. Meyer, K. A. and Singer, H. A. Syphilis of the Stomach. Arch. Surg. 26: 443-464, 1933.
13. Moore, A. B. and Aurelius, J. R. Roentgenologic Manifestations in 87 Cases of Gastric Syphilis. Am. Jour. Roentgenol. 19: 425-432, 1928.
14. Pearl, F., and Brunn, H. Multiple Polyposis. SGO 76: 257-281, 1943.
15. Serck-Hansen, F. quoted by Golden (5).
16. Schindler, R. Gastroscopy. Chicago: University of Chicago Press, 1937.
17. Templeton, F. E. X-ray Examination of the Stomach. Chicago; University of Chicago Press, 1944.
18. Weber, H., Kirglin, B. R. and Pugh, D. G. Lymphoblastoma Primary in the Gastrointestinal Tract. Am. Jour. Roentgenol. 48; 27-38, 1942.
19. Windholz, F. Roentgenologic Diagnosis of Hyperplasias of the Gastric Mucosa. Radiology 17; 514-519, 1931.
20. Findley, J. W. The Clinical Significance of Chronic Gastritis. Amer. Practitoner, Vol. 1, No. 9, page 920, September 1950.

A COMPARISON OF PERITRATE[R] AND OTHER ORGANIC NITRATES IN THE TREATMENT OF ANGINA PECTORIS*

Edward Phillips, M.D.
Los Angeles, California

When the ealy clinical experience with Peritrate[R] (1.2) in this country confirmed the impression of the French workers (3-5) that this drug was effective in controlling angina pectoris, a study was undertaken to compare the therapeutic and toxic effects of Peritrate[R] with other previously used organic nitrates.

Peritrate[R] is an explosive belonging to the same group as nitroglycerin, mannitol hexanitrate and erythritol tetranitrate. Its safety in animals and man has been thoroughly established by the United States Public Health Service. (6)

Methods and Results

Twenty-nine private patients with well-documented coronary arteriosclerotic heart disease with anginal syndrone who had previously taken erythritol tetranitrate and/or mannitol hexanitrate were given Peritrate[R] in doses of 10 mg. before each meal and 10 mg. at bedtime. One patient was started on 10 mg. T.I.D. The dose was increased to 20 mg. before each meal and 20 mg. at bedtime in 8 patients. The average duration of treatment was 10 months, the range being from 7 to 14 months.

Comparisons were made as to the effectiveness of the 3 drugs (Peritrate[R], erythritol tetranitrate and mannitol hexanitrate) on the control of symptoms and on the incidence and type of toxic effects (Table I). Only 2 of the 29 patients experienced any type of toxic effect from the Peritrate[R] (Cases 22 and 23). Case 22 was a 75 year old female who had 2 myocardial infarctions and severe anginal syndrome. It is pertinent to note that this patient could not tolerate erythritol tetranitrate because of headache. This patient could tolerate no more than gr. 1/400 of nitroglycerin. Nitroglycerin gr. 1/200 produced headache. The nausea and headache which she experienced was severe enough to stop the drug (Table I). Case 23 was a 61 year old female who had severe diabetes mellitus and coronary arteriosclerotic heart disease with anginal syndrome. This lady could not tolerate erythritol tetranitrate but she was able to take mannitol hexanitrate 100 mg. Q.I.D. Peritrate[R] produced slight nausea which did not warrant cessation of medication (Table 1). However, the Peritrate[R] was discontinued in this patient because the lack of therapeutic effectiveness did not warrant further treatment.

Ten patients tolerated both Peritrate[R] and erythritol tetranitrate (Table II). Five patients were equally improved with both (Cases 4, 11, 16, 21, and 26). Two (Cases 17 and 19) of these 10 patients were better improved with Peritrate[R] and 3 (Cases 8, 10 and 18) were not helped by either.

Fourteen patients tolerated the Peritrate[R] but not erythritol tetranitrate (Table II). Four of these patients were aqually improved by both (Cases 1, 3, 24 and 28). Nine of these 14 patients were better improved by erythritol tetranitrate (Cases 2, 5, 6, 13, 15, 20, 25, 27 and 29). One of these patients was not helped by either drug

*Peritrate (R), designated as CH-27 during clinical investigation, was supplied by Chilcott Laboratories, Morris Plains, New Jersey.

TABLE I

CASE NO.	AGE	SEX	Erythritol Tetranitrate Dose Gr.	Side Effect	Effects	Nitroglycerin Dose Gr.	Side Effect	Effects	Mannitol Hexanitrate Dose Mg.	Side Effect	Effects	Peritrate(R) Dose Mg.	Side Effect	Effects
1	59	F	¼ QID	Occasional Headache		1-200 1-150	None Headache	Good Good				10 QID 20 QID	None None	
2	47	M	¼ QID ⅛ QID	Headache None	Good Good	1-200 1-400	Headache None	Good Good				10 QID	None	Excellent
3	39	M	⅛ QID ¼ QID	No Headache Headache	Good	1-200 1-400	Headache No Headache	Good Good				10 QID 20 QID	None None	Good Good
4	62	F	¼ QID ½ QID	None None	Good Good							10 QID	None	Good
5	71	M	¼ QID	Headache	Poor	1-150 1-200	Headache None	Good Good				10 QID	None	Good
6	58	M	¼ BID ½ TID	Headache Headache	Poor Poor	1-150	Headache	Good				10 QID	None	Excellent
7	71	F				1-200 1-400	Headache Headache	Good Good	100 TID	Headache	Poor	10 QID	None	Excellent
8	42	M	¼ QID	None	Poor	1-150	None	Good				10 QID 20 QID	None None	Poor Fair
9	52	M	¼ QID ⅛ QID	Headache None	Poor Poor	1-200	None	Good				10 QID 20 QID	None None	Poor Fair
10	62	M	½ QID	None	Poor	1-150	None	Good				10 QID 20 QID	None None	Poor Fair
11	46	F	½ QID	None	Good	1-150	None	Good				10 QID	None	Good
12	56	M				1-150	Headache	Good	100 TID	Headache	Poor	10 QID	None	Good
13	58	M	¼ TID	Headache	Poor	1-100 1-200	Headache None	Good Good				10 QID	None	Good
14	62	M	¼ QID	Headache	Poor	1-100 1-200	Headache None	Good Good	100 TID	Headache	Poor	10 QID	None	Good
15	49	M	⅛ QID ¼ QID	None Headache	Poor Poor	1-200 1-400	Oc. H'dache None	Good Fair				10 QID	None	Good
16	54	M	¼ QID	None	Good	1-150	None	Good				10 QID	None	Good
17	59	F	¼ QID	None	Fair	1-200	None	Good				10 TID	None	Good
18	41	M	½ TID	None	Poor	1-150	None	Good				10 QID	None	Poor
19	42	M	¼ TID	None	Poor	1-150 1-200	Oc. H'dache None	Good Good				10 QID	None	Good
20	43	M	⅛ QID ¼ TID	None Headache		1-200	None	Good				10 QID 20 QID	None None	Good Good
21	49	M	¼ TID	None		1-150	None	Good				10 QID	None	
22	75	F	¼ QID	Headache		1-200 1-400	Headache None	Good Good				10 QID	Nausea & Headache	Poor
23	61	F	¼ QID	Occasional Headache	Fair	1-200	None	Good	100 QID	None	Fair	10 QID	Slight Nausea	Fair
24	64	M	¼ QID ½ QID	None Headache	Good Good	1-200	None	Good				10 QID	None	Good
25	62	M	⅛ QID	Severe Headache	Poor	1-200	None	Good				10 QID 20 QID	None None	Good Excellent
26	64	M	⅛ QID	None	Good	1-200	None	Good				10 QID	None	Good
27	46	M	⅛ QID Higher Doses	None Headache	Poor Poor	1-150 1-200	None None	Good Good				10 QID	None	Good
°28	55	F	⅛ TID ¼ QID	None Headache	Good Good	1-200	None	Good				10 QID	None	Good
°°29	50	M	¼ QID ½QID	None Headache	Poor Poor	1-200	None	Good				10 QID 20 QID	None None	Fair Good

°Patient died of acute myocardial infarction after 8 months on Peritrate(R).
°°Patient died of acute myocardial infarction after 7 months on Peritrate(R).

TABLE II

	Total Number of Patients	Equally Improved With Both	Better Improved With Peritrate	Neither Helped
Tolerated both Peritrate[R] & Erythritol Tetranitrate	10	5	2	3
Tolerated Peritrate[R] but not Erythritol Tetranitrate	14	4	9	1
Tolerated Peritrate[R] but not Mannitol Hexanitrate	2		2	
Tolerated Peritrate[R] but not Mannitol Hexanitrate or Erythritol Tetranitrate	1		1	
TOTALS	27	9	14	4

(Case 9). Two patients tolerated Peritrate[R] but not mannitol hexanitrate. Both of these patients were better improved with the Peritrate[R] (Cases 7 and 12). One patient tolerated Peritrate but not mannitol hexanitrate or erythritol tetranitrate (Case 14), and this patient noted better improvement with the Peritrate[R].

The difficulty in evaluating therapy in angina pectoris is well known. No attempt was made to use placebos or controls in any way. The primary purpose of the study was to compare the toxicity and the effectiveness of Peritrate[R] as contrasted with erythritol tetranitrate. Criteria for effectiveness of the Peritrate[R] and the other organic nitrates (erythritol tetranitrate and mannitol hexanitrate) used in this study were: (1) decrease in number of anginal attacks and (2) decrease in nitroglycerin requirement. Protection from attacks of angina pectoris decubitus was considered an "excellent" effect. Patients classified as having "good" results from the organic nitrates were those in whom the nitroglycerin requirement was definitely decreased. The results were considered "fair' when the nitroglycerin requirement was less markedly decreased and when such medication offered the patient sufficient improvement to worth the expense and trouble of taking the tablets. "Poor" results were those in which the organic nitrates were without therapeutic effect. In a few patients the effect of the organic nitrates could not be evaluated (Table I).

Toxic effects, however, are easy to determine. The striking result of this study was that only 2 of the 29 patients experienced unpleasant effects from the Peritrate[R], and both of these patients had previously been unable to tolerate erythritol tetranitrate. On the other hand, 17 of these 29 patients could not tolerate either erythritol tetranitrate or mannitol hexanitrate because of headache. Table II shows that Peritrate[R] probably is more effective therapeutically than erythritol tetranitrate and much less toxic.

The clinical experience described herein and reports of Winsor and Humphreys, (7) Perlman,(8) Samuels and Padernacht(9) and Plotz (10) indicate that Peritrate is an effective coronary vasodilator worthwhile in the treatment of angina pectoris and in the other painful syndromes of coronary arteriosclerotic heart disease. These studies confirm the animal experiments that Peritrate[R] is less toxic than erythritol tearanitrate.(6).

Summary and Conclusions

Peritrate[R] was administered to 29 patients with well-documented angina pectoris who had received erythritol tetranitrate and/or mannitol hexanitrate previously. Nineteen of these patients had experienced headache after taking erythritol tetranitrate or mannitol hexanitrate, but only 2 patients experienced unpleasant symptoms with Peritrate[R]. Both of these patients had been unable to tolerate erythritol tetranitrate previously. One was a 75 year old female who experienced nausea and headache on Peritrate[R]. The other was 61 year old female who noted some slight nausea after taking Peritrate[R]. Peritrate[R] appears to be less toxic and more effective than erythritol tetranitrate in the treatment of angina pectoris.

REFERENCES

1. Winsor, T. Personal comunication.
2. Phillips, E. Unpublished data.
3. Balatre, P., Merlen, J. F. and Grandjean, L. Les Esters Nitres des Polyalcools en Therapeutique Cardiovasculaire. Presse med. 73. 1067. (Nov. 19) 1949.
4. Marche, J. Le Traitement des Coronarites Chroniques pur les Esters Nitres des Polyalcools. Finches Med. 144:1 (April) 1950.
5. Dailheu-Geoffroy, P. Action Comparee de la Pentanitrine et des autres Vaso-Dilateurs Coronariens dans l'Angine de Poitrine. L'ouest-med. 3:37 (July) 1950.
6. Von Oettingen, W. F., et al. Toxicity and Potential Dangers of Penta-Erythritol-Tetranitrate (PETN). Federal Security Agency U.S.P.H.S. Bulletin No. 282, 1944.
7. Winsor, T. and Humphreys, P. Influence of Pentaerythritol Tetranitrate (Peritrate(R)) on Acute and Chronic Coronary Insufficiency. Angiology 3:1 (Feb.) 1952.
8. Perlman, A. A Study of the Therapeutic Action and Toxicity of Pentaerythritol Tetranitrate, Angiology 3:16 (Feb.) 1952.
9. Samuels, S. S. and Padernacht, E. D. Peritrate(R) in Peripheral Arterial Disease, Angiology 3:20 (Feb.) 1952.
10. Plotz, M. Pentaerythritol Tetranitrate: A New Drug for the Treatment of Coronary Insufficiency. New York State Journal Med. 52:2012 (Aug. 15) 1952.

BASIC *Science* SEMINAR

PHYSIOLOGY OF THE PANCREAS (EXOCRINE)

Jean-Louis Picard, M.D.
St. Mary's Hospital, Tucson, Arizona

I ANATOMY
II HISTOLOGY
III PHYSIOLOGY

A) *Classic theories of exocrine*
1) Volume of pancreatic juice
2) Composition of pancreatic juice
3) Ferments of pancreatic juice
a) Pancreatic proteinases
b) Pancreatic amylase
c) Pancreatic lipase
d) Pancreatic rennin

pancreatic
4) The regulation of the se-secretion of pancreatic juice

Physiology
a) Hormonal control
b) Nerve control

B) *Recent work on the physiology of the pancreas*

PHYSIOLOGY OF THE PANCREAS

It would seem necessary to give a description of the anatomy and of the histology of the pancreas for a better understanding of the physiology of this organ. *Anatomy*: The pancreas is an elongated, hammer-shaped gland; it lies in the epigastrium and left hypochondrium in an ultimately retroperitoneal position behind the serosal floor of the omental bursa, at the level of the first and second lumbar vertebrae. The pancreas is divided into a head, neck, body and tail. Two ducts collect the secretions of the pancreas; the main pancreatic duct of Wirsung and the accessory pancreatic duct of Santorini. The body and tail of the pancreas derive most of their rich arterial circulation from the splenic artery. The head is supplied largely by the anastamosing superior and inferior pancreaticoduodenal trunks from the gastroduodenal and superior pancreatico duodenal arteries respectively. The veins of the pancreas join the splenic vein, but a large trunk issues from the dorsal aspect of the gland and runs upward along the left of the common bile duct to join the portal vein. This vessel may be injured in exposure of the pancreatic part of the common duct. Scarcely an organ in the abdomen possesses as extensive a lymphatic distribution as does the pancreas. Its nerves are filaments from the lineal plexus or splenic plexus which is formed by branches from the celiac plexus, the left celiac ganglion and from the right vagus nerve. (1) (2).

Histology: Structurally as well as physiologically the pancreas may be divided into two portions: (1) the acinar system having to do with the secretion of digestive juices poured into the duodenum through the ducts of Wirsung and Santorini, (2) the islands of Langerhans or the interacinar system having to do with the secretion of insulin, which is the internal secretion concerned with sugar metabolism. The purpose of this paper is to study physiologically the pancreas as an exocrine gland only. The pancreas is a racemose gland, its alveoli resembling those of the salivary gland in their general arrangement and design. Lying between the alveoli are groups of cells constituting the islands of Langerhans. The cells which line the alveoli and furnish the ferments of the pancreatic juice, contain, like the serous cells of the salivary glands and the chief cells of gastric tubules, zymogen granules. During fasting the granules accumulate until eventually they almost completely fill the cell, but dur-

ing digestion they disappear with the discharge of the secretion, the width of the granular zone gradually decreasing. The secretion collected by a system of ducts leading to the duct of Wirsung and Santorini discharges in company with the common bile duct into the ampulla of Vater, and for the duct of Santorini, ¾ inch above the duct of Wirsung. (3) (4).

PHYSIOLOGY

(1) *Volume of Pancreatic Juice.*

A twenty-four hour output of approximately a liter or more of pancreatic juice has been reported in patients with fistulous tract by Monat (6), Kahn and Klein (7) and Snyder and Lium (8). In one day Snyder and Lium's case secreted as much as 1400 cc. of pancreatic juice. Despite the reports of smaller amounts, it seems safe to say that the average daily secretion is well in excess of one liter and that is it difficult to say how much, exactly, pancreatic juice is secreted in 24 hours by the normal human subject. (5) But the physiologist is able now to give a very good approximation by measuring directly the flow of pancreatic juice by canulating the pancreating duct. The volume of secretion for a period of sixty minutes after the administration of 80 units of secretin is the following:

	In Normal Patients	In Patients With Relapsing Pancreatitis	In Patients Having Chronically Diseased Pancreas
	CC.	CC.	CC.
Maximum	301	337	322
Mean	152	137	102
Minimum	75	34	4

Since the rate of pancreatic flow in the pathologic group is practically identical to the rate of flow in the normal group, it is tempting to suggest that the total volume of secretion may be a measure of the mass of functioning pancreatic cells. (9) Moderate increases in temperature favor an increased flow of pancreatic juice, whereas marked elevations cause a decrease. A low carbohydrate diet combined with large amounts of sodium bicarbonate so reduces the amount of pancreatic secretion as to be a valuable therapeutic measure in the closing of the fistulae. Secretions low in enzymes may be obtained by the oral administration of hydrochloric acid or water. Sodium bicarbonate seems to decrease pancreatic secretion and so do atropine, ephedrine and epinephrine. Pilocarpine and physostigmine produce increased secretion with a more viscous juice evidencing a greater proteolytic power.

The composition of pancreatic juice

The composition of pancreatic juice is given in the following tables. Its pH is between 7.10 and 8.20 (in dog). In human T. H. McGavack gives a pH lying between 8.0 and 9.0, changing within slight limits, in relation to the type of foodstuffs undergoing digestion.

(Modified from Starling)

	Secretin juice from three dogs (Sp. gr. 1014)	Pilocarpine Juice
Alkalinity; number of cc. of NaOH N/10 equal to 10 cc. juice	12.7	5.5
Total solids in 100 cc.	1.58 gm.	6.4
Total proteins in 100 cc.	0.5	4.8
Ash in 100 cc.	0.96	1.3
Chlorides in 100 cc.	0.30	0.27
Total nitrogen	——	0.74

The ferments of pancreatic juice are trypsin, chymotryspin, amylase, lipase, rennin, and maltase.

Pancreatic proteinases

There are at least two proteinases in pancreatic juice; trypsin and chymotrypsin. Trypsin is not secreted as such but in an inactive form called trypsinogen. The activation was first shown by Schepowalnikow in Pavlov's laboratory to be brought about by the addition to pancreatic juice of a small quantity of intestinal juice or an extract of the intestinal mucosa. The activation is due to an enzyme called enterokinase. Trypsinogen undergoes spontaneous transformation to trypsin when the pancreas is allowed to stand in a slightly acid solution. Pure trypsinogen is also activated by the addition of trypsin, or of magnesium or ammonium sulfate.

The spontaneous activation of trypsin is greatly accelerated by the presence of a calcium salt.

Chymotrypsin is also secreted in an inactive form: chymotrypsinogen, and is activated by trypsin but not by enterokinase.

These two enzymes, trypsin and chymotrypsin, are mainly responsible for the proteolytic activity of pancreatic juice. Both enzymes are proteins and they have been obtained in pure crystalline form. The optimum pH for the action of trypsin and of chymotrypsin is around 8; that of enterokinase is within the range between pH 5.2 to pH 6.0. The action of trypsin carries the digestion of protein beyond the stage of pepton. It also differs from peptic digestion in being carried on in an alkaline instead of in an acid medium. Though under ordnary circumstances trypsin is called upon to commence its action after the gastric juice has converted a large part of the protein into proteose and peptones, it can also at-

tack native protein; flesh introduced directly into the duodenum is readily digested by the pancreatic juice. Nevertheless, the preparatory digestion of protein by gastric juice is favorable to tryptic action. The specific action of trypsin is to break the proteose and peptone fragments of the protein molecule into smaller amino-acid groups. These are generally termed 'peptids." In the earlier stages of tryptic digestion the amino acid groups are for the most part still relatively large polypeptides. Some of these are later split into groups containing 2, 3 or 4 amino acids, constituting the dipeptids, tripeptids and tetrapeptids; even a few individual amino-acids such as tyrosine and tryptophane are released. The complete breakdown of protein is reserved for the erepsin of the succus entericus. The pancreatic juice also contains a small amount of an enzyme similar in action to erepsin. (4) Le Breton and Mocoroa demonstrated that normal pancreatic juice contains the following proteiolytic ferments: (a) a tryptase in the state of an inactive proferment; activated by the kinase, this enzyme breaks the proteins into amino-acids and some polypeptids. (b) a protaminase directly active which hydrolyses the protamine to liberate arginine. (c) a carboxypolypeptidase directly active which breaks polypeptides. Of those 3 ferments the typtase plays the most important role. ((11).

Pancreatic amylase

This has an action similar to but much more powerful that that of salivary amylase (ptyalin). In the hydrolysis of starch by pancreatic juice the same stages are passed through as for salivary digestion, but they are completed in a fraction of the time, most of the starch being converted into maltose within a few minutes. Due to traces of maltase small amounts of glucose are also formed in the final stages of the pancreatic digestion of starch. Pancreatic amylase unlike the corresponding salivary enzyme is capable of digesting unboiled starch. Raw corn and wheat may be converted entirely into maltose, and raw potato starch is transformed to the extent of 80 per cent. It is important to remember in connection with infant feeding that during the first few weeks of life pancreatic amylase, the only really efficient ferment for the digestion of starches, is absent from the pancreatic juice. Little provision has been made for the digestion at this time of any other food than the natural one: milk.

The amylotic ferment of the pancreas acts in a neutral slightly alkaline or slightly acid medium. It acts to best advantage when the medium is faintly acid or neutral in reaction, its pH optimum ranging from 6.7 to 7.0. Certain inorganic ions, especially Cl, are absolutely essential for its action; if these be separated from pancreatic juice by dialysis, the juice is deprived of its starch splitting power. Part of the amylase is believed to be reabsorbed from the intestine and excreted in the urine.

Pancreatic lipase

This is a fat splitting enzyme. It has the power

PANCREATIC SECRETION IN MAN AFTER STIMULATION WITH SECRETIN AND ACETYL-BETA-METHYLCHOLINE CHLORIDE (10)

Substance	Total Duodenal Contents in cc. 70 Min. period	Peak Period in Min.	Amount in Peak Period In cc.	pH	Total 70 min.	Amlase In Gm. per cc. at P.P.	Maltose Total P.P.	Peak at Min.
Fasting	8.78 (10 Min.)			7.05		1.3		
Secretin (humoral Stim.)	151.3	1-20	32.33	8.00	104.05	0.318	8.83	10-20
Mecholyl chloride (vagal stim.)	58.4	1-30	40.8	7.05 (approx.)	210.68	3.790	181.01	0-40

Substance	Secretion of Trypsin in CC. N/10 KOH				Secretion of Lipase in CC. N/220 NaOH			
	Total 70 Min.	Per cc. at P.P.	Total P.P.	Peak at Min.	Total 70 Min.	Per cc. at P.P.	Total P.P.	Peak at Min.
Fasting		1.60				76		
Secretin	148.0	0.60	16.5	10-20	13,373	62	1,691	10-20
Mecholyl chloride	138.5	2.65	103.7	0-30	6,474	103	6,474	0-70

of splitting the neutral fats of the food by hydrolysis, into fatty acid and glycerol. A typical reaction would be as follows:

$$C_3H_5(OOCC_{15}H_{31}) + 3H_2O \rightarrow 3(C_{15}H_{31}COOH) + C_3H_5(OH)_3$$

Palmitin — Palmitic acid — Glycerol

Pancreatic lipase is very unstable and is easily rendered inert by the action of acid. For this reason it is not possible to prepare an extract having a satisfactory fat splitting power from a pancreas which has been removed from the organism for a sufficiently long time to become acid in reaction.

Pancreatic lipase is undoubtedly the most important fat splitting enzyme in the digestive tract. In the absence of pancreatic lipase, as when the pancreatic duct is obstructed by disease, the fat of the diet appears in the undigested form in the feces; this condition is known as steatorrhea. The enzyme is water soluble and presumably a protein, although sufficiently pure preparations to prove this have not as yet been obtained, nor has the enzyme been crystallized. The action of the enzyme on fats is obviously dependent in large extent upon the surface of fat available; thus, the more highly emulsified the fat is, the more surface is exposed to the aqueous phase containing the enzyme and the more rapid is lipase action. Emulsification of fats in the digestive tract is facilitated by the presence of bile, because of the lowering of surface tension brought about by the bile salts. The bile also aids in fat digestion by aiding in the removal of the end products of lipase action. It is believed by some that the bile actually activates pancreatic lipase; it appears more probable that the acceleration in lipase activity in the presence of bile is due to physiochemical action of the bile salts in facilitating closer contact between the water-soluble lipase and the fat globule. (12).

Pancreatic rennin

Pancreatic rennin has an action similar to that of gastric rennin, but the pancreatic juice has a much more powerful milk-curdling power than has gastric juice. It is probable that this action is not due to a separate enzyme but to chymotrypsin.

The regulation of the secretion of pancreatic juice

The regulation of pancreatic juice is under both hormonal and nervous control.

—a) *Hormonal control*

Bayliss and Startling showed that an acid extract (HCL) of the duodenal mucosa when injected into the blood stream of an animal caused a copious flow of pancreatic juice. I. V. injection of the acid itself was ineffective. A secretoguogue effect also followed the introduction of acid into a loop of bowel whose nervous connections have been completely severed, the only communication between the bowel and the pancreas being then through the blood stream. The secretory effect was shown to be specific and not simply due to vasodilatation of the pancreatic vessels. *The excitatory substance was called secretin.* The obvious physiological implication of these results was that the acid chyme upon coming into contact with the duodenal mucosa caused the production, or liberation, of a substance which was then conveyed by the blood to the pancreatic cells.

Ivy, Farrell and Lueth transplanted a loop of intestine and the tail of the pancreas to subcutaneous sites, thus isolating the two structures completely from extrinsic nervous control. They obtained secretion from the pancreatic transplant when acid was placed in the isolated loop. Since the intra-venous injection of acid alone is ineffective, this experiment affords conclusive evidence for the liberation of a hormone from the intestinal mucosa.

Mellanby and Huggett demonstrated that secretin existed preformed in the mucosa from which it could be extracted by water, alcohol and other solvents as well as by acid. Bayliss and Starling had claimed that the hormone existed in an inactive or precursory form which they called prosecretin. Mellanby also found that bile introduced into the duodenum caused secretin to be absorbed into the blood stream and that the active agent in the bile was the cholic acid of the bile salts. He suggested that the bile salts in their passage through the intestinal mucosa absorbed the secretin and carried it into the blood. Bile salts, however, though aiding in the absorption of the hormone are not absolutely essential. Ivy and his colleagues have shown that food (meat and fat) entering the intestine stimulates pancreatic secretion in the usual manner after ligation of the common bile duct.

The action of secretin is not reduced by atropine which paralyzes vagal endings or by ergotamine which paralyzes sympathetic secretory fibers; so there is no evidence that its production or absorption is influenced by nervous mecha-

nisms, or that it stimulates parasympathetic terminals in the pancreas. It appears to be a direct excitant of the glandular cells. Secretin also stimulates the secretion of bile and probably of the succus entericus. Its cholalogue effect is a direct one and not simply secondary to the liberation of metabolites from the activated pancreas.

Ivy and Greengard have obtained secretin in the form of a crystalline picrolonate. The highest yield of secretin is given by the upper two-thirds of the small intestine. Minimal amounts are obtained from the lower third of the small intestine and from the ascending colon. It is absent from the gastric mucosa.

Harper and Raper have given the name of pancreozymin to a second pancreatic hormone obtained, like secretin, from duodenal mucosa. The existence of this hormone has been confirmed by Greengard and his associates. Unlike secretin, it stimulates the secretion of trypsin, amylase and lipase but exerts little or no effect upon the volume of secretion. It causes the discharge of the zymogen granules; its action is thus similar to that of the vagus though its effect is apparently a direct one upon the gland cells and not exerted through the nerve terminals for it is not altered by atropine. (4).

(b) *Nerve control*

It has been known since the important work of Pavlov on pancreatic secretion that the gland cells are excited by vagal impulses. This control of pancreatic secretion by the vagus was shown in the following way. The nerve was divided in the neck four days previously. This preliminary procedure has the effect of practically abolishing irritability of the cardiac fibers. When the nerve prepared in this way is stimulated, a well-marked secretion of juice occurs. The vagal secretion is rich in ferments. Indeed, the secretion of ferments is mainly under vagal control. The chief effect of secretin, on the other hand is to cause the secretion of the water and inorganic constituents, e.g., the bicarbonate of the pancreatic juice. Vagal stimulation causes exhaustion of the zymogen granules. Then, apparently, the extrusion of the colloidal zymogenous particles from the cells into the alveoli is largely controlled by nervous impulses. The hormone, on the other hand, causes a flow of alkaline fluid which serves to flush the alveoli, to thin the juice rich in organic material and sweep it along the ducts. Pilocarpine acts similarly to vagal stimulation. Atropine annuls the nervous secretion, but not that caused by secretin and pancreozymin. Stimulation of the splanchnic nerves was found by Harper and Vass to reduce the rate of secretion of pancreatic juice and the output of enzymes, but this may be secondary to a constrictor effect upon the vessels of the gland. They conclude that the sympathetic is either without effect upon pancreatic secretion or is inhibitory. (4)

Recent Works on the Physiology of the Pancreas

We have seen the classic theories of exocrine pancreatic physiology. Let us point out now some of the new experiments which modify or add to the classic picture. It was known before that secretin was liberated from the upper intestine by acids, but an acid was thought to be the most powerful and also the most important stimulus for the intestinal phase of pancreatic secretion. So far the experimental evidence does not exclude acid as an important stimulus for pancreatic secretion. However, some other foods produce a less acid intestinal content, notably fats; they do nevertheless, adequately stimulate the pancreas. Furthermore, some clinical investigators, McClure, C. W. and Christiansen, T., have pointed out that pancreatic secretion appears to be adequate in achlorhydria at least with respect to enzymes. Dr. Pincus and his co-workers at the Jefferson Medical College undertook a direct approach to the problem. They measured the volume of pancreatic juice secreted by dogs during measured time intervals while animals were digesting various types of meals and determined the pH of samples of intestinal contents collected during the same time intervals. They found, as have others, that both the volume of pancreatic juice and the intestinal pH varied from moment to moment to a considerable range. They confidently expected to find that these fluctations would be related to each other in such a way that an increase in volume in pancreatic juice would be associated with an intestinal acidity and vice versa. This did, in fact, happen on occasion, but just as often the volume increased while the acidity decreased, or the two showed no recognizable relationship whatever. This is sufficient to raise a reasonable doubt as to the validity of the classical viewpoint, particularly since it is based on an hypothesis only and not on experimental evidence.

Dr. Babkin advanced the hypothesis that an increase or decrease in the concentration of one enzyme is accompanied by a corresponding change in the concentration of all other enzymes.

In 1943, Grossman and Ivy reported a study on rats which seemed to show the relative concentrations of various enzymes in pancreatic tissue was not constant but varied with the diet. Dr. Beamer has tried similar experiments using dogs instead of rats and pancreatic juice instead of pancreatic tissue. Not only did he find variations in average relative enzyme concentration, possibly associated with change in diet, but he was unable to verify parallel secretion of enzymes in animals on a constant diet. Trypsin, amylase and lipase were determined daily. Considerable fluctuation in the concentration of each of these enzymes was observed from day to day. The variations in concentration of each enzyme were frequently unrelated to variations in concentration of other enzymes. (9)

Cellular source of secretion

Because the pancreas apparently possesses only one type of secreting cell it has been assumed that the fluid, bicarbonate and enzymes were all produced by the same type of cell. Recent work by Lagerlof and by Friedman and Snape has shown that in pancreatic disease the secretion of enzymes may be supressed, while the secretion of fluid remains normal or nearly so. This suggests that two different tissues may be involved in these functions. A study by Grossman and Ivy of the effects of alloxan on the pancreas suggests that the fluid may be secreted by the cells of the intralobular ducts. They found that in alloxan treated dogs in addition to the well-known damage to the islet tissue, the cells of the intralobular ducts showed vascuoliscation; at the same time there was a suppression of the secretion required to initiate secretion. Enzymes remained normal. In another study from Irv's laboratory it was found that pancreozymin, which increases the output of digestive enzymes from the pancreas, did not augment the output of alkaline phosphatase. Another observation made in the same study was that the phosphatase apparently was localized in the cells of the intralobular ducts, again implicating these ducts as being the source of certain constituents of the pancreatic juice. (4)

Until rather recently the most widely accepted theory concerning the regulation of pancreatic secretion was that of Mellanby who considered secretin as the regulator of water and bicarbonate secretion and vagal nerve impulses as the regulator of enzyme secretion. It was thought that the cooperation of these hormonal and nervous mechanisms accounted for all the fluctations in volume and composition of pancreatic secretion which ocurs in normal digestion. In 1943, another hormone was introduced into the picture. From studies of purified intestinal mucosal extracts, the actions of the two hormones have been clearly demonstrated to be as follows: secretin stimulates water and bicarbonate secretion while pancreozymin stimulates enzyme production. Now, two questions of primary importance remain to be answered: first, which foodstuffs, when present in the intestine stimulate the mucosa to release secretin in which to release pancreozymin: and second, what is the extent to which each of the two mechanisms, nervous and hormonal, contributes to the regulation of the external pancreatic secretion? Those questions have received different answers and the experiments of Wang and Grossman of the Department of Clinical Science, University of Illinois, try to answer the above two questions more quantitatively and defi-nitely. Dogs with a portion of the pancreas subcutaneously auto-transplanted were used for demonstrating the release of secretin and pancreozymin from the intestinal mucosa when various foodstuffs were introduced into the intestinal lumen.

(1)Distilled water has a weak stimulating effect on the transplanted pancreas while saline solution has none.

(2) HCL solution, when present in the small intestine acts as a powerful agent in the release of secretin, but also acts as a relatively weak stimulus for the release of pancreozymin.

(3) Products of protein digestion-peptone and amino acids solution are powerful stimuli for enzyme secretion by the pancreas (Pancreozymin effect). Their secretin effect is also prominent being second only to HCL.

(4) Fat (corn oil) and soap (Na oleate) are both effective in the stimulation of the transplanted pancreas and have a prolonged action. Soap is the more effective in the release of hormones, being second only to th protein group.

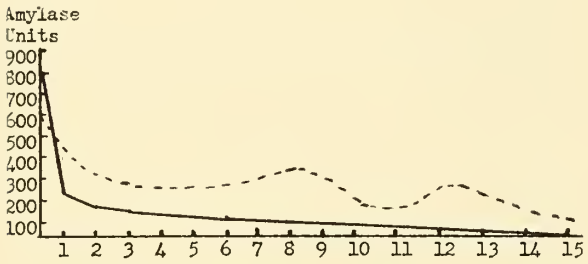
(5) Carbohydrates (soluble starch, maltose and dextrose) when present in the small intestine are not adequate stimuli for the pancreas under the conditions of this experiment.

(6) Atropinization does not abolish the effect of peptone acting on the pancreas indicating that a cholinergic nervous mechanism is not likely to be involved in the release of secretin and pancreozymin by various foodstuffs under the ex-

perimental conditions used. These experiments were performed using the subcutaneous autotransplanted pancreas in order to determine whether nervous connections between the intestine and the pancreas were necessary for the stimulation of enzyme secretion. (13)

Wang and Grossman of the University of Illinois College of Medicine reported an interesting paper on the "EFFECTS OF LIGATION OF THE PANCREATIC DUCT UPON THE ACTION OF SECRETIN AND PANCREOZYMIN IN RABBITS WITH A CORELATED HISTOLOGICAL STUDY." We have seen that secretin acts as stimulus for increasing the volume rate of pancreatic juice secretion and pancreozymin for enzyme output of the pancreas. The effect of ligation of the pancreatic duct upon the action of secretin and pancreozymin in response to a change in the pancreas, both histologically and functionally.

The following graph summarizes their findings:



Both the volume and the enzyme output of the juice showed a slow and gradual decrease from the low value obtained at 4 days to zero by the end of two weeks. After two weeks it is interesting to note that there is no amylase at all. The corresponding histological sections from the animals during this period showed that a gradually progressive degenerative process was taking place in the acinar cells. The infiltration of the fibrous tissue and the round cells became more pronounced as the ligation time increased and finally, at the end of two weeks, almost all of the acinar cells were associated with hyperplasia and enlargement of the ductules.

This resulted in a few dilated ductules surrounded by infiltrated fibrous tissue remaining in each of the lobules. If a longer period of ligation takes place, we have a gradual replacement of the acinar cells by the ductules with an atrophy of the lobules. The action of a single supramaximal dose of secretin and the action of pancreozymin gave approximately the same curve. The loss of function after different durations of ligation was correlated closely with the picture of degeneration of the cells as revealed histologically. Obstruction is believed to play an important role in the pathogenesis of pancreatitis. The present study permits an evaluation of the pancreatic changes produced by obstruction alone, without the additional factors of excessive stimulation of secretin and vascular impairment which are required to cooperate with obstruction if edema and necrosis of the glands are to occur. In clinical practice, when secretin is used to test pancreatic function it is usually found that the volume and bicarbonate show abnormally low values in early cases of chronic pancreatitis and only at a later stage is the enzyme output reduced. This suggests that the type of damage occurring in these clinical cases is different from that produced by obstruction of the ducts in the experimental animal. When pancreozymin becomes available for clinical use, it may help to clarify this apparent disassociation of function. (14)

Conditions in which pancreatic insufficiency occur clinically.

Derangement of pancreatic physiology is present in all forms of acute and chronic pancreatitis whether or not we are capable of detecting a change in functional capacity of the organ. Probably the severest form of insufficiency is seen in cases of pancreatic fistula, particularly where the tract connects with a large duct. Both true and pseudo cysts of the pancreas may be associated with severe disturbances in pancreatic function. Tuberculosis and syphilis represent rare causes of diminished activity. A wide variety of extra pancreatic conditions capable of producing secondary inflammatory changes in the pancreas will also cause a derangement of pancreatic physiology. (5)

Effcts of excluding pancreatic juice from the intestinal tract

The clinical or experimental picture obtained will depend upon whether the exclusion of pancreatic juice from the intestinal tract is complete or incomplete and whether or not this effect is produced by carefully ligating all connections between the pancreas and duodenum or by such a procedure plus the creation of a fistulous tract permitting the pancreatic juices to drain externally. The complete absence of pancreatic juice is probably never seen clinically, so that the full fledged syndrome may be best considered in the light of experimental evidence. When no pancre-

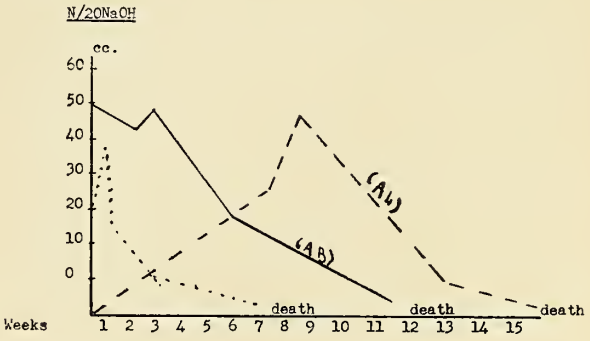
atic juice is allowed to enter the intestinal tract, there follow polyphagia, a gradual loss of weight, and the passage of large bulky, foamy stools containing undigested and unabsorbed fat and carbohydrate. Both Ivy and McClure attribute the polyphagia to an increased gastrointestinal motility and to a partial starvation secondary to defective intestinal digestion and absorption. The passage of bulky diarrheic stools appears early and seems to be directly dependent upon the amount of unabsorbed fat (steatorrhea) and unabsorbed protein (creatorrhea).

In the human being, the few cases described of complete external fistula gave the following syndrome: extreme anorexia, nausea, vomiting, profound asthenia, marked dehydration and rapid lossof weight; profound metabolic changes accompany the clinical symptoms and include progressive anhydremia, acidosis, a marked preagonal elevation of blood urea nitrogen and a decrease in blood plasma chlorides. In incomplete fistulae, the syndrome produced is like that of a complete external fistula, only perhaps less severe. (5)

Value of serum amylase and lipase determinations in the diagnosis of pancreatic lesions

Any mechanism which tends to block the normal egress of pancreatic juice from the main pancreatic duct into the duodenum may be reflected in an elevation of the serum amylase and lipase. We have no practical test for estimating trypsin in the blood. What are the mechanisms that would cause a complete or partial block of the main pancreatic duct? (1) Pancreatic stones or inspissated intraluminal contents; (2) intramural swellings due to inflammation or tumor of the main pancreatic duct; (3) extra luminal pressure on the main pancreatic duct in most instances due to inflamation or tumor, either in or adjacent to the pancreas. Elevated serum lipase and amylase values merely reflect the fact of increased intraluminal pancreatic duct pressure without reference to what might be the primary cause in the pancreas itself. The normal value of the serum lipase test are below 1.00 cc. of twentieth-normal sodium hydroxide, using the modified Cherry and Crandall technic. The serum lipase test requires a twenty-four hour period of incubation before completion. The serum amylase test may be reported within an hour. The normal values of the serum amylase test using the Somogyi technic are below 125 mg. of glucose. As with serum lipase, low values cannot be regarded as evidence of decreased pancreatic function. In acute pancreatitis the serum amylase values are more labile and seem to reflect rapid changes in the disease process to a more satisfactory degree than does serum lipase. In the more prolonged block of the main pancreatic duct seen in carcinoma of the head of the pancreas, the serum lipase is the more satisfactory of the two tests.

The following graph demonstrates a number of important aspects of the interpretation of the serum lipase in instances of carcinoma of the pancreas:



As with inflamatory changes in the head of the pancreas, the elevated serum lipase value is related to pressure on the main pancreatic duct but due in this instance to the influence of a growing tumor in juxtaposition to the main pancreatic duct. In case A.B. (solid line) the initial value of 5.0 cc. N/20 sodium hydroxide gradually fell to within the normal range of less than 1.0 cc. at the time of death. At necropsy almost the entire pancreas had been replaced by tumor tissue which was reflected in decreased serum lipase determination shortly before death in such a case gives an erroneous concept of the nature of the disease process. In a series of cases of carcinoma of the pancreas, an elevated serum lipase value will be obtained in only 40 per cent of the cases, due largely to the fact that the case is already in an advanced stage at the time of the initial admission to the hospital. Case A. L. (broken line) was picked up with an initial normal serum lipase value at a time when they were doing serum lipase determinations on all out patients merely to determine the specificity of the test in pancreatic cases. At operation and at necropsy, the diagnosis of carcinoma of the pancreas was established. In this case, we can follow the serum lipase from a time prior to compression of the main pancreatic duct, through the period of compression on the duct in the

presence of functioning pancreatic tissue and its final phase in which complete replacement of functioning pancreatic tissue by adenocarcimona was reflected in a serum lipase value within normal range about ten days prior to death. (9)

Lipocaic-deficiency syndrome

We will now see the most controversial question about the physiology of the pancreas: Dragstedt's lipocaic or Chaikoff's antifatty liver factor. The conception that lipocaic is an internal secretion of the pancreas depends on the recognition that the depancreatized dog fed on a mixed diet of protein, carbohydrate and fat is not restored to a normal state by the adequate administration of insulin and pancreatic juice, and that the remaining deficiency is corrected by oral administration of pancreas or of certain extracts of pancreas but not of other organs. Moreover the same workers found no changes in blood or liver fat in dogs with experimentally produced pancreatic fistulae. Therefore, they suggest that the alpha cells of the pancreas may function to produce the effective material.

On the other hand, pancreatic atrophy without diabetes and without histologic changes within the islands of Langerhans has been attended by marked fatty infiltration of the liver and an alteration of blood lipids. This leads to the conclusion that the acinar cells play a part in the secretion of lipocaic. Moreover, it has been shown by Montgomery, Chaikoff and their associates that the intestinal tract along with the endrocrine secretion of the pancreas and that the blood and liver lipids of duct ligated animals behave similarly, in every respect, to those of depancreatized animals.

The term lipocaic-deficiency syndrome may be applied to the phenomenon of fatty liver occurring in pancreatic insufficiency, a condition clinically and experimentally recognized for a number of years. How and why such pancreatic lesions cause secondary hepatic disturbances is not as yet quite clear. However, all obscrvers agree that the pancreas secretes some substance necessary for the metoblism of fat in the liver and for its transport through the blood. (5)

Dragsted and his associates were first to make an alcoholic extract of the pancreas capable of preventing these changes. Later, they showed that the active material to which they gave the name of lipocaic, to be fat free, water soluble and almost entirely free of choline. Here are now the statements made by each school on this subject.

Dragsted's Statement. The demonstration that lipocaic is an internal secretion of the pancreas depends on the recognition that the depancreatized dog, fed on a mixed diet of protein, carbohydrate and fat is not restored to a normal state by the adequate administration of insulin and pancreatic juice and that the remaining deficiency is corrected by the oral administration of the pancreas but not by other organs. Extracts of pancreas have been prepared which are effective on oral and subcutaneous administration in daily doses of from 60 to 100 mg. of dried substance. Since these extracts are practically free from lecithin and choline, the former conclusion that the beneficial effect of pancras feeding in depancreatized dogs cannot be accounted for on the basis of its content of these chemicals is confirmed.

Experimental studies have demonstrated that the oral administration of fresh active pancreatic juice, with insulin therapy, does not prolong life or prevent the characteristic fatty changes in the liver, although the digestion and absorption of food are much improved. (15)

Chaikoff's statement. There can be no doubt that the pancreas contains a factor other than insulin that prevents the deposition of excessive amounts of fat in the liver. Evidence for this view was first obtained in the completely depancreatized dog kept alive with insulin in which fatty livers were found to develop when the animal was maintained on a diet adequate in proteins, vitamins and salt but lacking raw pancras. Later work showed that ligation of the pancreatic ducts was sufficient to induce fatty livers. The question now arises as to how thc factor in the pancreas that inhibits the accumulation of excessive amounts of fat in the liver is made available to the organism. Although observations on the duct ligated pancreas suggest that the factor is released by the external secretion of the pancreas, the fact must not be overlooked that this procedure is associated with atrophy of a portion of the gland and hence may be responsible for the destruction of an internal secretory mechanism. That uncquivocal evidence for the action of the external secretion could be obtained only by directly examining the effects of the digestion of pancreatic juice upon lipid metabolism. This has been done in the present investigation. Conclusive evidence is given that fatty livers pro-

duced either by excision of the pancreas or by duct ligation can be completely prevented by the daily ingestion of pancreatic juice.

The mechanism whereby pancreatic juice brings about this effect is at present obscure. Absorption of the liver factor probably occurs after the pancreatic juice is poured into the small intestine, but an answer to the question whether it is absorbed unaltered in the form present in the pancreatic juice or whether before absorption it is changed by an interaction with the intestinal mucosa or some dietary constituent must await further investigation. Irrespective of these speculations, it is now apparent that the evidence provided by Dragstedt and his coworkers for the claim that the liver factor is released by the pancreas by way of the blood stream only and not through the external secretion of the gland is no longer tenable. (16)

These contrary results and conclusions have not yet been resolved. What concerns us however, is the area of agreement, i.e., that the pancreas secretes whether internally or externally, a lipotrophic agent other than choline.

For practical reasons of simplifying experimental procedures and permitting the use of large number of animals, much work has been done with the rat which readily develops a fatty liver when maintained on a diet deficient in choline or choline precursors. Best and his co-workers (17 & 18) have claimed that in such animals, pancreatic extracts have no effect beyond that which can be accounted for by the choline content of the extracts. On this basis, these workers doubt the existence of any other lipotrophic factor originating in the pancreas. However, this conclusion is hardly warranted by the observations.

If, as is outlined, Dragstedt's lipocaic and/or Chaikoff's anti-fatty liver factor acts by liberating the choline precursor (methionine) from the foodstuffs in the gastrointestinal tract, it is obvious that such pancreatic extracts cannot be effective when the foodstuffs in the gastrointestinal tract are deficient in the choline precursor. If, as has been suggested, "lipocaic" acts by catalizing the liberation of free methionine from the products of protein digestion in the gastro-intestinal tract or by facilitating the absorption of methionine, it is obvious that its effect will be conditioned by the amount of protein in the diet and the adequacy of the digestive enzymes. Work in progress by Haanes and Gyorgy is strongly in favor of the proteolytic nature of the active lipotrophic fraction of the pancreas. They have shown that a potent fraction of pancreas which is lipotrophic when given by mouth to depancreatized dog exhibits the characteristic action of a trypsin-like enzyme, which may be masked by the simultaneous presence of trypsin-inhibitor. However, duodenal juice inactivates the inhibitor. The active factor is capable of liberating methionine from a pepsin digest of casein.

Then, in the depancreatized animal, we can attempt to analyze the situation by pointing out that it suffers from three separate deficiencies: (1) lack of insulin (2) a lack of pancreatic digestive enzymes and (3) a lack of pancreatic factor, Dragstedt's lipocaic or Chaikoff's antifatty liver factor. Each deficiency has its own characteristic syndrome; but each influences the manifestations of the other deficiencies when they exist together: (1) Lack of insulin, this has nothing to do with the present paper. (2) Lack of pancreatic digestive enzymes: interferes with complete digestion of all the proteins in food. This partly accounts for the chronic weight loss and negative nitrogen balance despite the use of adequate amounts of insulin. It also provides insufficient amounts of methionine not only for the synthesis of body protein but also the manufacture of choline. This together with the lack of "lipocaic", leads to a fatty liver and liver dysfunction, as evidenced by a rise in the serum alkaline phosphatase and a drop in the serum cholesterol esters. The animal has no difficulty in making choline from methionine but his difficulty is in liberating or absorbing free methonine. If lipocaic acts by catalizing the liberation of free methionine from the products of protein digestion in the gastrointestinal tract or by facilitating the absorption of methionine, its action will be partly dependent upon the completeness of protein digstion. Even if the liberation or absorption of methionine is not catalyzed by lipocaic, these processes may be assumed to proceed at some suboptimal rate. Thus the purely digestive action of pancreatic juice may partly account for the favorable effects of feeding it to depancreatized dogs, without the necessity for supposing that pancreatic juice contains "lipocaic." (20) (3) Lack of lipocaic: has been described above.

As you can see, the discussion remains open on this interesting but controversial subject of "lipocaic."

BIBLIOGRAPHY

1. Surgical Anatomy—Callender.
2. Anatomy of the Human Body—Gray.
3. Textbook of Histology—Jordan.
4. Physiological Basis of Medical Practice—Best & Taylor.
5. Practice of Medicine, Vol. VII, Tice.
6. Pancreatic fistula—Monat. Med. Bull. Vet. Administration, 983,1932.
7. Human pancreatic secretion studied from case of pancreatic cyst with fistula—Am. J. M. Sc. 184: 503, 1932.
8. Pancreatic fistula case with intubation of Wirsung Duct: Surg. Gyn. & Ob. 62:57, 1936.
9. Post-Graduate Medicine and Surgery—Bockus.
10. Pancreatic secretion in man after stimulation with secretin and acetyl-beta methycholine chloride—Arch. Int. Med. 66:688, 1940.
11. Precis de Physiologie—Hedon, E.
12. Practical Physiological Chemistry—Hawk, Oser and Summerson.
13. Physiologic determination of release of secretin and pancreozymin from intestine of dogs with transplanted pancreas—Wang C. Grossman, Am. J. Physiol. 164, 527-545, Feb. 1951.
14. Effects of ligation of pancreatic duct upon action of pancreozymin in rabbits with correlated histological study. Wang C. Grossman, Wang, K. J. Am. J. of Physiology, 160, 115-121, Jan. 1950.
15. Present status on lipocaic—Dragstedt, L. R. J.A.M.A. 114: 29, 1940
16. Role of external secretion of pancreas in lipid metabolism—J. Biol. Chem.
17. The pancreas and the deposition of fat in the liver—Best, C. H. and Ridout, J. H. Am. J. Physiol., 122:67, 1938
18. Choline as a dietary factor—Best and Ridout, Ann. Rev. Biochem., 8:349, 1939.
19. Observations on the in vitro action of a new lipotrophic fraction of the pancreas—Am. J. M. Science, 221:596, 1951.
20. Carbohydrate Metabolism, Soskin and Levine, Pg. 98-103.

PHOENIX *Clinical* CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE NO. 36341

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-five-year-old man was admitted to the hospital because of malaise, fever and progressive generalized weakness.

The patient was well until five weeks before entry, when insidiously he began to feel tired, lost his appetite and noted generalized weakness. However, he continued to work until three weeks before entry, when he developed chills with fever and the weakness became worse. A doctor gave him twenty doses of aureomycin and ten injections of penicillin. The weakness increased slowly and was accompanied by tenderness of both thighs. The temperature continued elevated, running from 100 to 102°F. Ten days before admission he began to vomit and had some diarrhea, both of which persisted. Four days before entry he became afebrile, and the penicillin was discontinued. Two days later because of persistent vomiting he was given several doses of tincture of belladonna, and a maculopapular rash appeared on the neck, face, chest and trunk. Despite increasing weakness he was able to walk with assistance until the morning of admission, when suddenly he could barely move his legs.

The past and family histories were irrelevant.

Physical examination revealed an acutely ill man with frequent hiccuping. The skin was very dry, with a maculopapular rash and a few pustules on the face, neck and trunk. The conjunctivas were injected, and the fundi clear. The tongue was parched, and there was bleeding of the palate. The pharynx was dry and injected, without exudate. The lungs were clear. The heart was not enlarged. The sounds were distant; there was sinus rhythm at a rate of 88, with a Grade I apical systolic murmur. The abdomen was soft, with no masses or tenderness. Rectal examination was negative. Neurologic examination revealed profound generalized weakness. The cranial nerves were intact, and no sensory changes were found. The ankle and knee jerks were absent, and the biceps and triceps hypoactive.

The temperature was 100°F., the pulse 90, and the respirations 22. The blood pressure was 140 systolic, 90 diastolic.

Examination of the blood disclosed a white-cell count of 17,700, with 78 per cent neutrophils. The nonprotein nitrogen was 310 mg., the total protein 3.5 gm., the fasting blood sugar 207 mg., the phosphorus 19.9 mg. and the calcium 8.1 mg. per 100 cc., and the sodium 135.6 milliequiv., the choloride 97 milliequiv., and the potassium 10.1 milliequiv. per liter. A blood culture was negative. An X-ray film of the chest was not remarkable. An electrocardiogram showed a normal rhythm, with a PR interval of 0.32 second. The QRS complexes were wide, with a duration of 0.14 second and bizarre configuration. The T waves were high and peaked and ST segment depressed in Leads V2 through V6. The electrocardiagram was considered consistent with potassium intoxication. A lumbar puncture taken just after admission revealed a clear colorless fluid under an initial pressure equivalent to 140 mm. of water and a final pressure equivalent to

80 mm. of water. The spinal fluid contained 4 red cells per cubic millimeter. The gold-sol and Wassermann tests were negative.

On admission the patient was given 5 per cent dextrose in physiologic saline solution intravenously. After receiving 700 cc. he recovered muscular function, and the reflexes were normal. During the next twenty-four hours he received 5500 cc. of 5 per cent dextrose in physiologic saline solution. However, he continued to be markedly dehydrated, vomited moderate amounts of bile-stained fluid and passed no urine. On the second hospital day he appeared drowsy, and the rash became more extensive. Physical examination was essentially unchanged except for hypoactive reflexes. Trousseau and Chvostek signs were negative. The nonprotein nitrogen was 340 mg., and the fasting blood sugar 207 mg. per 100 cc., and the potassium 8.7 milliequiv., the chloride 103 milliquiv., and the carbon dioxide 10.1 milliequiv. per liter. The electrocardiogram was almost normal with normal PR intervals and QRS complexes. The T waves were low in Leads 1 and AVL and normal in the other leads. The hemoglobin was 9.5 gm. per 100 cc., and the white cell count was 12,500. A cystoscopic examination was performed, with catheterization of the left ureter; aspiration yielded a white, milky material followed by 10 cc. of urine, which contained many red cells, white cells and casts. The retrograde pyelogram showed a normal left kidney. The right ureter could not be catheterized because of movement of the patient. Because of the persistent anuria, he was put on the artificial kidney, with a blood flow averaging 300 cc. per minute. At the beginning of the procedue the nonprotein nitrogen was 220 mg., and uric acid 10.5 mg., the creatinine 29.2 mg., and the blood urea nitrogen 153 mg. per 100 cc., and the carbon dioxide 8.3 milliequiv., the sodium 139.5 milliequiv., the chloride 107 milliequiv., and the potassium 8.3 milliequiv. per liter. During the procedure he became unresponsive and had a slight hypertensive effect. The dialysis was continued for six hours. After dialysis, the nonprotein nitrogen was 160 mg., and the blood urea nitrogen 147 mg. per 100 cc., and the carbon dioxide 13.4 milliequiv., the sodium 146.6 milliequiv., the chloride 113 milliequiv., and the potassium 4.5 milliequiv. per lter. Shortly thereafter he developed marked laryngeal stridor requiring intubation, which established a good airway. Gradually he lapsed into deep coma and died sixty hours after admission.

DR. BEN P. FRISSELL

This 55-year-old man presented himself at the time of his hospital entry with classical symptoms and signs of terminal renal failure, or uremia. Practically all of the symptoms which he presented would appear to fit into the protean symptomatology of this condition. Likewise, the accumulated laboratory data, including the extremely high non-protein nitrogen (310 mgm. on admission) and the low total blood protein, (3.5 gm.) the high phosphorus level 19.9 mg. (as compared to a normal of 9-11), and the potassium level of 10.1 milliequiv. which would be considered as a high level for this particular electrolyte, and the apparent anemia as evidenced by hemoglobin of 9.5 gms. are in keeping with uremia. The EKG changes of uremia are variable and are interpreted usually as taking on the elements of changes in electrolyte balance of the blood as well as organic changes in the myocardium. Fasting blood sugar of 207 mg. recorded on two occasions is not a usual finding in uremia, but in an anuric patient, such as the one in question, an elevated blood sugar would certainly be expected after the use of intravenous dextrose which he had on admission and apparently continuously for at least 24 hours to the tune of 5,500 cc. which should certainly be enough not only to raise the blood sugar but to kill a patient already in the terminal stages of renal failure with anuria very likely due to so-called "lower nephron syndrome." It is a marvel that he lived for 60 hours after admission, even long enough to be subjected to the use of an artificial kidney.

Our understanding of uremia has improved considerably during the past decade or so, but after carefully perusing the current literature, one cannot help but realize how little we actually know about renal function, particularly pathological renal function. Nonetheless, a great deal of improvement in our understanding of the situation has come about by the simplified classification of renal disease as advanced by Bell and others who have been active in this field of endeavor. Th term "uremia" originally chosen to designate a syndrome associated with nitrogen retention in the blood is much too simple to cover the complicated changes which occur in the electrolyte balance of the blood as a result of renal failure. The symptom complex is likewise extremely complicated depending largely upon the

status of electrolyte balance. For instance, there may be marked edema associated with sodium retention or there may be severe dehydration as in our case with low or normal sodium levels in the blood. Potassium may be either high or low as may be the case with calcium, phosphorus, etc. There is practically always a low carbon dioxide combining power as was in our case with resultant acidosis. The urine output may sometimes be increased or the patient may be completely anuric.

Our problem would appear to be that of attempting to arrive at a reasonable explanation for the rapid progress of this man's disease. We have a man who apparently was well five weeks, or a little longer, before his final demise and whose original symptoms did not suggest renal disease but rather pointed to some systemic infection. The fact that his past history does not give any evidence of renal disease does not rule out the possibility of pre-existing renal damage. After all, the man was 55 years old and could have had considerable renal involvement on an arteriosclerotic basis, a condition which is notably insidious and benign in its progression. Likewise, glomerular nephritis is many times discovered in an advanced chronic stage without any evidence of an initial acute attack which is generally conceded to be the precursor of a chronic nephritis of this type. According to Bell's series, he was able to obtain a history of an acute nephritis in only 54 cases whereas 213 cases, no pre-existing renal pathology was known to the patient.

In attempting to arrive at a diagnosis, I have considered the various causes of uremia. For the purpose of differential diagnosis, Barnes, in a recent article in the JAMA, has classified uremia into two large groups: (A) The obstructive bilateral lesions, or the so-called "urological uremias" and (B) The non-obstructive bilateral renal lesions, or the so-called "medical type" of uremia. The latter group has been further classified by Pruett of Mayo Clinic into (a) Glomerular lesions, (b) Primary vascular lesions, (c) Tubular lesions, (d) chronic diffuse nephritis and (e) Secondary renal failure, or so-called prerenal azotemia.

(A) I believe the obstructive group needs only casual perusal to rule them out. This group includes prostatic hypertrophy, cancer of the bladder and lower urinary tract. The course in this type of uremia is usually insidious, indolent in character. There is usually not a marked increase in NPN in comparision to the non-obstructive type. They are usually non-ferbile except for complicating urinary tract infections. What little X-ray evidence we have in this case does not point to any obstructive lesion.

(B) Of the Non-obstructive group: (a) Glomerular lesions are perhaps the best known and will be considered first. Of this group, (1) glomerular nephritis heads the list. This disease is characteristically a disease of young people occuring usually before the age of 10 years. The clinical course of the acute form of this disease does not parallel the symptoms present in our case. The so-called triad of symptoms, *hypertension*, *edema*, and *renal insufficiency* is not fulfilled in our case. There is usually grossly bloody urine in the acute stage of the illness, fever usually lasts for not more than a week, kidney involvement is usually preceded by streptococcic infection of the upper respiratory tract. In 90 per cent of the cases in children the course results in complete recovery and in adults where there has previously been a damaged kidney by previous involvement, the condition tends to lapse into a more chronic form of nephritis gradually terminating in uremia. (2) *Kimmelstiel-Wilson's disease*, so-called intercapillary glomerulosclerosis, first described by the above investigators in 1936, is a nephritic syndrome seen frequently in diabetic patients, usually past middle life, the primary lesions occurring in the glomerular portions of the kidneys. These changes are very closely tied up to those found in arteriosclerotic kidney disease, and, although they are sometimes found without diabetes, usually are found in conjunction with it; according to Bell's series, occurring in 25% of necropsy cases of diabetics. The course is not usually acute. Hypertension is the rule in these cases. No hypertension was noted in our case and even though we are confronted with the blood sugar slightly elevated, I do not believe that the above syndrome is the answer to our problem. (3) *Amyloid disease*. Another glomerular condition to be considered is so-called amyloid disease of the kidney, "amyloid nephrosis" as it formerly was called with its characteristic picture of edema, albuminuria, and hypoproteinemia. This condition presupposes amyloid disease which is not evidenced in our case. (4) Disseminated lupus erythematosus, another condition, (a rare one which makes it a good bet for our Club) which is said to involve primarily

the glomerular structure of the kidney in those cases in which renal complications are found during the course of the disease. It was formerly believed that the changes in this condition were characteristic of the disease but more recent investigation has indicated that the lesion is merely a mild form of acute glomerular nephritis or glomerulitis. It is very seldom found to develop into a severe degree of kidney disease and the renal lesions can be considered fairly benign in comparison to the picture we are facing in our present case.

(b) Primary vascular disease of the kidney includes so-called (1) arteriosclerotic kidneys of the senile type, (2) diffuse arterial disease under the classification of essential hypertension, and (3) perarteritis nodosa. In all of these instances, hypertension is the outstanding symptom. The course of the disease is more insidious than that under consideration today.

(c) Tubular lesions. This group of renal lesions has been reduced to rather simple proportions during the past decade. Bell distinguishes two types of tubular disease; the so-called *degenerative* and the *obstructive* lesions. The degenerative lesions include chemical poisoning such as mercuric chloride, carbon tetrachloride, uranium nitrate. Obstructive lesions include the syndrome produced in sulfonamide poisoning and the reactions to incompatible blood transfusions and the renal complications accompanying multiple myeloma. Mixed type of involvement of the tubular structure, namely, a combination of both the degenerative and the obstructive lesions, probably occurs in all of these situations mentioned above. This is of course the category of renal disease which has recently come to be known as so-called lower nephron syndrome, or "acute renal insufficiency" in its more acute form. Clinical features are usually anuria, oliguria, azotemia, hypertension, and uremia. The mechanism of damage to the tubular structure of the kidney is still not clearly understood but an ever increasing list of possible causes has come to be considered from an etiological standpoint. A recent paper by Thomas W. Parken gives the following conditions which may initiate so-called lower nephron syndrome: (1) Prolonged shock, (2) Congestive heart failure, (3) Acute pyelonephritis, (4) Overdose of, and sensitivity to, sulfonamides, (5) Intravascular hemolysis, (6) Poisoning by heavy metals, (7) Severe burns, (8) Crush injury syndrome, (9) Extrarenal obstructive lesions of the genitourinary tract, (10) Dehydration and loss of inorganic bases, (so-called extrarenal uremia) (1)) Acute glomerular nephritis, (12) Toxemia of pregnancy, (13) Intoxication by noxious chemical agents, (14) Certain urological procedures, (15) Postoperative suppression of urine, (16) Septic abortion, (17) Blackwater fever, (18) Cholera, (19) Yellow fever, (20) Weil's disease, (21) Hepatic failure, and (22) Heat stroke. Certainly, from the list of factors given above that may cause this syndrome, it is obvious that no single pathological process can be expected at autopsy. On the other hand, it does appear from clinical evidence accumulating from time to time, that changes in the tubular structure of the kidney, whatever the nature and the origin, are somehow responsible for the altered renal function.

(d) To proceed with further consideration of non-obstructive bilateral renal lesions, chronic diffuse nephritis and secondary renal failure or so-called prerenal azotemia remain to be discussed. It is found, however, that various conditions producing so-called "prerenal azotemia" are included in Parken's "acute renal insufficiency"; namely, congestive heart failure with its resultant functional renal ischemia, and prolonged shock such as may be produced from severe burns, crushing injury, surgical procedures, massive hemorrhage, and Addison's disease. The mechanism in these instances is renal hypotension and, lastly, dehydration with its resultant dimunition in the amount of blood flow through the kidneys. It is doubtful if any of these conditions are present in the case in question. They usually run a relatively mild course as far as renal failure is concerned and are capable of responding to appopriate therapy.

(e) There remains for discussion the so-called group of "chronic diffuse nephritis." This term is an outgrowth of the former terminology, interstitial nephritis, and includes pyelonephritis, bilateral hydronephrosis, polycystic disease of the kidney and leukemic or lymphoblastic infiltrations of the kidneys. Pyelonephritis exists both in an acute and chronic form. Bell makes a very concise and illuminating statement about this group of renal diseases when he states that the most important feature of this type of renal disease is that "it is caused by the lodgement of bacteria in the kidneys." This in contradistinction to glomerular nephritis where bacterial toxins, or sensitivities to bacterial products are apparent-

ly responsible for the kidney changes rather than the actual inflammatory reaction due to bacterial invasion. This reaction may be disseminated throughout the structure of both kidneys and, as the name implies, involves all structures of the kidney rather than any one isolated portion of the nephron. The acute stage of pyelonephritis is characterized by chills and fever, sometimes no localizing symptoms pointing to the urinary tract. Pyuria which develops after a few days may not be present in an early specimen of urine. Nausea and vomiting may be commonly found. Leukocytosis may be in the neighborhood of 15,000 to 20,000. The acute symptoms usually subside in a period of five to seven days or may progress to the stage of chronic pyelonephritis or may develop into acute renal failure. Certainly the initial symptoms in our case could fit the category of an acute pyelonephritis. Under ordinary circumstances, one would expect that treatment with penicillin and aureomycin would favorably influence the course of this disease. However, under conditions of present day medical management, it is quite possible for even the ordinary organisms found in these lesions to have become drug-fast to any of the various anti-biotics and chemotherapeutic agents. And, furthermore, it is not beyond the realm of probability that our esteemed judge might have failed to disclose the fact that other therapeutic agents might hav been utilized in this case. (I am referring, of course, to Dr. Dysart and the drug, a sulfonamide).

The finding of an apical systolic murmur, I believe, is likely of no significance other than being a terminal issue in a dilated heart accompanied by a severe degree of anemia. However, this suggests the possibility of *subacute bacterial endocarditis* which may be a factor in the production of metastatic renal lesions of the type described above.

Typhoid fever has been known to produce a severe degree on pyelonephritis in its terminal stages. In this instance, the time is short for such development. The typical blood picture is not in evidence. *Weil's disease* not infrequently produces acute renal failure with the pathological picture approaching that of lower nephron syndrome. The onset of this disease is usually very abrupt which is at variance with our case. 70% of the cases show definite jaundice and hepatic involvement as a primary pathological process. There is no hint in the present case that liver pathology exists. The skin rash which is present as described in our case, could, of course, be due to Weil's disease or could likewise be explained on the basis of uremia which I am inclind to believe is the case. *Polycystic* disease of the kidneys should perhaps be mentioned in passing. The brief duration of the symptoms, the absence of X-ray findings, etc., are against this diagnosis. The infiltration of the kidney structure by leukemic or lymphoblastic cells or, in fact, by any metastatic malignant growth may produce symptoms of renal failure. These gradually produce the symptoms characteristic of so-called chronic diffuse nephritis. There may be hypertension, edema may or may not be present, albuminuria, and gradual development of chronic uremia.

In conclusion, I am inclined to believe that our patient died of so-called acute renal failure, otherwise termed "lower nephron syndrome." Of the causative factors, I believe that most likely we are dealing with acute *pyelonephritis* complicated perhaps by sulfonamide treatment and resultant toxic reactions to this drug.

DR. LOUIS B. BALDWIN

At the time this 55 year old man was admitted to the hospital, the blood studies revealed a profound uremia and it is left for us to determine the underlying disease. The symptoms fit in well with this diagnosis. There was hiccuping. The skin was dry with a maculopapular rash and a few pustules on the face, neck and trunk. There was profound generalized weakness and the pharynx was dry and injected. The blood pressure was only slightly elevated, and in view of the normal occular fundi had not previously been elevated for a long-period of time. It is to be assumed that, at the time of his admission, there was a total anuria, for there is no record of a urinalysis, and only a small amount of urine was obtained at cystoscopy from the left ureter. This yielded a milky material followed by 10 cc of urine, which contained many pus cells, red cells and casts. The left kidney appeared normal by retrograde pyelogram.

The cause of uremia may be either bilateral obstruction to urinary outflow, or non-obstructive bilateral renal disease. But it must also be kept in mind that neither of these conditions may be the cause of lower nephron nephrosis produced by shock and other causes, the underlining condition is one of impaired volume flow of blood

through the kidneys, and relative concentration of the blood.

Let us consider renal disease first. We have a 55 year old man, who was presumably well until five weeks before admission to the hospital. He then noted lassitude, weakness and loss of appetite. But he apparently had no pain, nor other symptoms pointing to urinary obstruction. From the cystoscopic examination we may rule out polycystic renal disease.

If there were an obstruction of the vesicle orifice or urethra, there would be dysuria, frequency and urgency are bladder distention. It is extremely unlikely, therefore, that he had an enlarged prostate or other bladder obstruction to account for the uremia. Bilateral ureteral involvement fom calculi or neoplasm would almost invariably cause lumbar pain referred to the groin. The bilateral tenderness of both thighs complained of by this patient might be on the basis of weakness, it might also be due to renal calculi. Had there been renal or ureteral calculi in both sides, one would expect the retrograde left pyelogram to reveal this fact. The evidence that is given to us is therefore against the diagnosis of post renal obstruction to account for the uremia in this case.

Chronic glomerular nephritis is a common cause of uremia. In this disease, the vast majority of cases begin with an insidious onset and the discovery is often made by accident in the course of a routine examination. In a series of 80 patients reported by Bradley and Loeb the observed duration of this disease varied from a few months to more than forty years. Of this group 18 per cent lived less than a year after the establishment of the diagnosis.

Weakness, lassitude, and loss of weight are probably the most common complaints in chronic nephritis. In about 10 per cent the course is utterly devoid of symptoms up to the stage when the symptoms of terminal uremia develop. In some cases a latent nephritis may become active, particularly in association with streptococcal infection. After a recrudescence of this type, the disease may again become quiescent only to flare up again at some subsequent time. Hypertension may be absent in chronic nephritis and only moderately elevated as a terminal event. In those cases that do not have hypertension, retinal changes almost never occur.

In the present incidence there was a brief illness of only 5 weeks duration. From what has been said about chronic nephritis, it might be assumed that the patient had a latent chronic nephritis which entered the terminal stage of uremia at the time he began feeling ill. In favor of this view is the anemia (9.5 gm. hemoglobin per cent) which always accompanies a long lasting nephritis and the blood changes characteristic of uremia. Moreover, the urine contained many red cells and casts. The total blood protein was about half the normal, the blood calcium was low, but the sodium and chloride were only slightly depressed, whereas, the potassium was 10.1 per cent, which is double the normal value. The phosphorous of the blood was extremely high and there was a marked acidosis. The other findings were what might be expected in uremia, though the blood sugar was somewhat high, it might be explained in part by the glucose infusions that were given. It is interesting that the electrocardiogram was consistent with potassium intoxication.

What has been said about chronic glomerular nephritis might just as well apply to arteriolar nephrosclerosis, except that in this condition, there are more often retinal changes and hypertension.

Against the diagnosis of chronic nephritis are the fever and the pus in the urine, though both of these conditions may occur as complications of the disease.

In patients first observed when albuminuria and renal insufficiency are already present, the diagnosis is difficult and may be of great practical importance. For example, Butler has reported two cases in which pyelonephritis involving only one kidney has led to hypertension and the clinical picture of arteriolar nephrosclerosis. In these two patients removal of the diseased kidneys has resulted in cure.

Kidney infection must be seriously considered in this case, in spite of the fact that it is more often the cause of chronic renal disease in the female than the male. Two factors seem to be of particular importance in the susceptibility of the kidney to infection, these are calculus or obstruction to urinary flow. Congenital malformation in the calices, pelvis, or uterers often predisposes to infection of the urinary tract. Acute pyelonephritis or pyelitis should be suspected in patients with unexplained chills, fever and malaise. In some cases there may be repeated acute attacks without the characteristic lumbar pain or costovertebral tenderness. In patients suspected

of having Bright's disease because of albuminuria, pyelonephritis should be considered as a possibility when numerous white blood cells are also present in the urinary sediment. In these instances acute pyelonephritis may lead to wide spread suppuration of the kidney and if both kidneys are involved the patient may succumb to uremia. In the case under discussion this diagnosis seems untenable because of the normal left kidney seen by pyclography. Chronic bilateral pyelonephritis is more common in children and in women, but is by no means uncommon in older men. The pathological changes in the kidneys, according to Longcope, suggest that the progress of the disease is caused through the gradual destruction and diminution by inflammation and scarring of small portions of the kidney. The clinical picture is variable and at times the symptomatology is so mild and vague that the disease escapes detection until it is far advanced.

As can be seen from this description it is impossible to rule out the terminal stage of chronic bilateral pyelonephritis in this case. There are the pyuria, and chills and fever, there is also an anemia probably indicating a chronic process.

Other urinary infections such as tuberculosis seem extremely unlikely. In conclusion three conditions should be mentioned as capable of producing uremia. Acute hepatitis may terminate in uremia, though this case gives no history or signs of having had acute hepatitis. It may be argued that a lower nephron nephrosis was superimposed upon a pre-existing nephritis by antibiotic therapy. In a recent A.M.A. Journal, Spring reports purpura and nephritis after administration of procaine penicillin, and in the same Journal, Gittell reports a shock-like state resulted from the administration of aureomycin. It must be further noted that in about 10 per cent of cases of lower nephron nephrosis acute pyelitis or pyelonephritis occurs as a complication.

However, the marked anemia as shown by the low blood hemoglobin is against the diagnosis of lower nephron nephrosis in this case.

Finally diffuse renal periarteritis and lupus erythematosus may terminate in uremia but seem untenable diagnosis in this patient, as does amyloidosis. It is noted that the treatment with intravenous solutions in this case were entirely too energetic.

Final diagnosis:

1. Chronic pyelonephritis—uremia.
2. Lower nephron nephrosis.
3. Chronic glomerular nephritis with complicating renal infection.

DIFFERENTIAL DIAGNOSIS

Dr. Charles L. Short*: We might look at the X-ray films first, Dr. Wyman.

Dr. Stanley M. Wyman: The chest and heart and not remarkable. The films taken from the retrograde pyleogram show a normal-appearing left kidney, with normal calyxes and pelvis. The right kidney is poorly outlined but appears within normal limits in size and shape.

Dr. Short: There is not even a suggestion of a filling defect in the calyxes?

Dr. Wyman: Not that I can see.

Dr. Short: The chest shows no signs of a healed infection or pneumonia?

Dr. Wyman: I do not see anything to suggest any previous trouble.

Dr. Short: The story is essentially that of a ferbile illness that came on insidiously and gave no real localizing features except possibly the vomiting, the diarrhea and the tenderness of the thighs. The ferbile phase was apparently subsiding, perhaps in response to antibotics, shortly before admission. Simultaneously, the patient became much sicker and was found on admission to be in extreme renal failure, with anuria. At this time two features of potassium intoxication were apparent—namely, the severe muscular weakness and the electrocardiographic changes. The potassium intoxication responded rapidly to intraveneous administration of saline solution and glucose, but otherwise the patient failed to respond to treatment, which included a run with the artificial kidney. This was quite effective as far as the blood flow and the improvement in the blood chemical findings were concerned.

I think the first point we have to decide in this patient is whether the whole illness, including the terminal uremia, represented one disease or whether he died from renal failure secondary either to the febrile disease or to the treatment that was employed. I can think of only two or perhaps three ferbile diseases that commonly terminate in renal failure with anuria. The first is Weil's disease. One usually thinks of this condition as a form of hepatitis, but severe renal involvement is frequent and death may ensue from uremia. This diagnosis was suggested to me by the tenderness of the thighs, since muscle tenderness may be one of the most distressing features of this condition, surpassing that which is

*Associate physician, Massachusetts General Hospital.



Childhood constipation deserves treatment which gently restores normal peristaltic movements; drastic elimination cannot permanently correct the condition and may be harmful to the child.

ROLE OF METAMUCIL® IN ESTABLISHING PROPER BOWEL HABITS IN CHILDREN

Metamucil's bland, demulcent bulk is a physiologic way to manage bowel dysfunction in youngsters.

Metamucil does more than merely clear the constipated bowel. When taken with adequate amounts of water, Metamucil's hydrophilic colloid has a proved corrective effect on the child's misfunctioning intestines. Use of Metamucil early in life assures a natural method of elimination and helps guard against formation of the "laxative habit" in later years.

Mixed with fruit juice, milk or the child's favorite beverage, Metamucil provides a gentle, corrective stimulation to peristalsis. There is never a "rush"—never a weakening diarrhea with Metamucil.

Metamucil is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

SEARLE Research in the Service of Medicine

found in trichoinosis. The injection of the conjunctivas and the rash are consistent with this diagnosis. I believe, however, that the absence of jaundice or of liver enlargement is sufficient to exclude Weil's disease in this patient. It is true that in many cases of Weil's disease, jaundice or signs pointing toward hepatitis may be entirely absent, but death in the absence of jaundice is certainly extremely rare.

The second febrile illness that may end in uremia is the severe form of pyelonephritis, which occurs more commonly in diabetes, usually called necrotizing renal papillitis. There is a record in this case of two fasting blood sugar determinations of over 200 mg. per 100 cc. That is fairly good evidence for diabetes. Necrotizing renal papillitis may come on insidiously, without localizing signs, and the diagnosis is often made only at autopsy unless the possibility is thought of in life. This usually appears in nondiabetic patients only with urinary obstruction, for which there was no real evidence in the case under discussion. There are two points against this diagnosis; the first is the disappearance of fever before admission, and probably much more important the normal retrograde pyelogram, at least of the left kidney. Since in the fatal cases the process is usually bilateral, I think we have to discard this diagnosis. On the other hand, if Dr. Wyman had shown us irregular filling defects of the renal calyxes I think I could have made the diagnosis with some assurance.

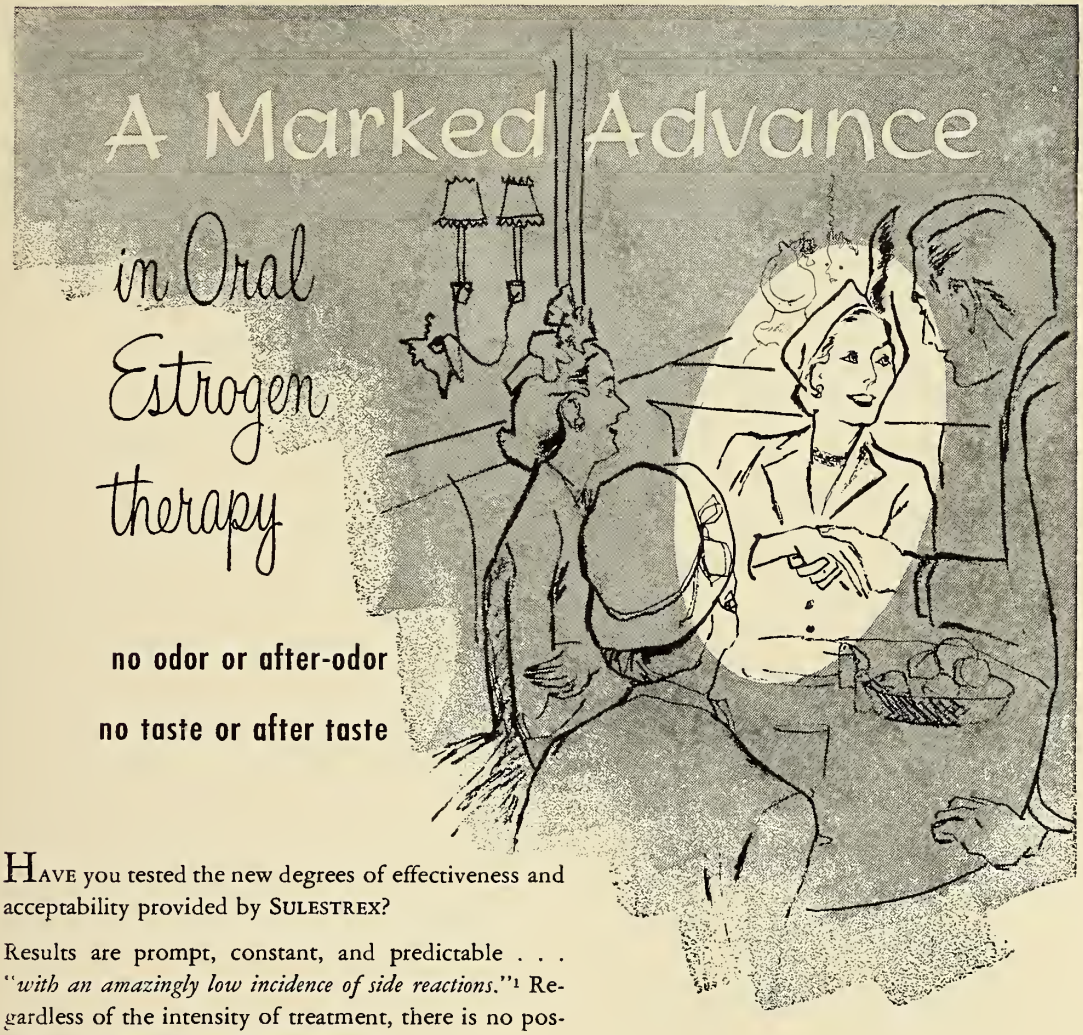
The third febrile illness that may terminate in this way is periarteritis nodosa in a rather acute fulminating form. There were no helpful diagnostic points that I can discover that would enable one to make a diagnosis of a primary or idiopathic periarteritis nodosa to explain the whole illness.

In going over the history it seemed to me more likely that the renal failure was secondary and not actually a part of the patient's disease for which he was given antibiotics. The history gives no clue to the original disease, although presumably it was an infection that had apparently responded to therapy. The vomiting and the diarrhea might have resulted from the aureomycin, although we are not told the exact time when this drug was administered. The question might be raised here of extrarenal azotemia secondary to vomiting and diarrhea. I do not believe that this is likely as the sole explanation of the renal failure unless he had pre-existing renal disease. Pre-existing Bright's disease is not suggested by the history although the low serum protein brings up the possibility of a chronic glomerulonephritis. The normal blood pressure, the lack of eyeground changes and the anuria are all against a terminal stage of glomerulonephritis.

It think it is more likely that this patient suffered a catastrophic insult to the kidneys in the form of lower-nephron neprosis or cortical necrosis. None of the known causes of lower-nephron nephrosis have been recorded in this case—shock, intravascular hemolysis or sulfonamide intoxication. I know of no evidence that toxicity from antibiotics such as penicillin or aureomycin may be responsible. He may have had a certain degree of shock from the vomiting and diarrhea, but I am reluctant to make this diagnosis without adequate causative factors. The most reasonable explanation of this man's death from renal failure would seem to lie in a severe reaction to one of the antibiotics given, with hypersensitivity as the probable mechanism. It is well known that allergic manifestations in the form of rashes have been recorded after aureomycin. The development of a rash in this patient and the renal failure occurring after the apparent subsidence of the original infection are the most important clues to the diagnosis that I wish to present—namely, hypersensitivity to penicillin or aureomycin, with vascular lesions resembling periarteritis nodosa and cortical necrosis of the kidney. I am reminded here of a patient* discussed at one of these conferences several years ago who died in severe renal failure consequent to sulfonamide toxicity and who showed at autopsy the findings I have just mentioned.

Dr. James J. Currens: I think it might be of some interest to know that the requisition for the electrocardiogram raised the question of low potassium because of the muscular weakness and paralysis, and the electrocardiographic evidence was really the first indication of serious potassium intoxication. That there was a rather dramatic change in the electrocardiograms within about eighteen hours after 2 or 3 liters of fluid had been administered, is important, I think, particularly since the serum potassium changed very little—from about 10 to almost 9 milliequiv. per liter. This helps corrobrate the evidence that we are collecting that there is no correlation between serum potassium levels and electrocardio-

*Case Records of the Massachusetts General Hospital (Case 28501). New Eng. J. Med. 227:922-927, 1942.



HAVE you tested the new degrees of effectiveness and acceptability provided by SULESTREX?

Results are prompt, constant, and predictable . . . "*with an amazingly low incidence of side reactions.*"[1] Regardless of the intensity of treatment, there is no possibility of esthetic "embarrassment."

Measure these advantages when prescribing for your next menopausal patient. SULESTREX (piperazine estrone sulfate, Abbott) provides the natural estrogen, estrone, in pure crystalline form. It is not a mixture of estrogenic agents of variable potencies. SULESTREX is stable, water-soluble, odorless and tasteless.

You may choose from three prescribing forms: Tablets,* Sub-U-Tabs,** and Elixir.* Try it soon, with this confidence: you can't prescribe a more effective oral estrogen.

Abbott

Sulestrex®
Piperazine

* AMA Council Accepted
** T.M. for Sublingual Tablets, Abbott
1. Reich, W. J. et al. (1952), A Recent Advance in Estrogenic Therapy. II. Amer. J. Obst. & Gynec., 64:174, July.

1-1648

graphic changes. Also, the serum sodium was essentially the same on these two occasions so that the ratio of sodium to potassium was again about the same. It raises the question, which is as yet unanswered, whether intracellular potassium, particularly in the conduction system, is the important factor in this regard.

Dr. Lloyd H. Smith, Jr.: As the patient died six hours after being on the artificial kidney, I might make a brief comment about the procedure. It was a very satisfactory dialysis lasting about six hours; in fact, it was the most satisfactory dialysis from a technical standpoint that we have ever had. The bath with which he was dialyzed was modified in one important way. Because of the very high serum potassium level we omitted potassium from the dialyzing fluid. We thought the results would be correspondingly good and were very surprised and disappointed that he died in such a mysterious fashion soon after the dialysis.

Dr. Richard Goldsmith: Regarding what Dr. Currens said, I wonder if it might be assumed, in a man who was given 5500 cc. of fluids intraveneously, that there was a relapse of potassium from the cells to the blood that kept up the serum potassium concntrate?

Dr. Marian Ropes: At the time of admission this patient presented a very confusing picture. Clinically, there was little to suggest renal failure. He was extremely clear mentally. We ascribed the anuria, which was apparent a few hours following admission, to the extreme dehydration. We believed that he had an infections disease resulting in this condition of almost complete paralysis and of heart block. However, it so became apparent that he really was in renal failure. We had then no explanation for the underlying renal disease.

Dr. John W. Littlefield: I should like to know if anybody knows what happens to the potassium in renal azotemia? Is that a differential point? Is there evidence of potassium intoxication just from dehydration?

Dr. Currens: I think some of the changes that have been reported in Addison's disease are probably of that nature in which the renal function is quite poor probably as a result of the electrolyte in balance of the serum. There may be retention of the potassium to the point that it tends to produce the electrocardiographic evidence of potassium intoxication. That is the only one that I can think of just now.

CLINICAL DIAGNOSIS

Uremia

Chronic glomerulonephritis, acute.

DR. SHORT'S DIAGNOSIS

Cortical necrosis of kidneys.

Periarteritis nodosa due to hypersensitivity to antibiotics.

ANATOMICAL DIAGNOSIS

Glomerulonephritis, acute.

Intracerebral hemorrhage, right.

PATHOLOGICAL DISCUSSION

Dr. Tracy B. Mallory: Autopsy showed two important findings. The first was the kidneys, which were very much enlarged, weighing 500 gm., and showed smooth, pale surfaces dotted with petechial hemorrhages — a gross picture that was quite characteristic of an acute glomerulonephritis. Microscopical sections confirmed that. Every glomerulus was involved, with both capillary obliteration and marked formation of epithelial crescents. There were just a few minute old scars of vascular lesions in the kidney, but I do not think that there had been any significant degree of chronic glomerulonephritis antedating this attack. The reason why the patient died so shortly after the period of dialysis was explained when the head was examined, revealing a very large cerebral hemorrhage, which Dr. Richardson can dscribe for us.

Dr. Edward P. Richardson Jr.: When the brain was examined, it was apparent from the flattening of the convolutions of the right hemisphere, and also by evidence of herniation of the medial aspect of the right temporal lobe through the opening of the tentorium, that there was a large mass within the right hemisphere. On section of the brain we found a very large cerebral hemorrhage within the right hemisphere. The blood within it was fresh, and it could not have been of any long duration. It assuredly was the cause of death in this case. In addition scattered thoughout the midbrain and pons were multiple hemorrhages. Hemorrhages of that type are seen in cases of increased intracranial pressure and frequently are associated with temporal herniation such as we found in this case. They were secondary to the large space-taking mass within the cerebral hemisphere, and they probably resulted in the very rapid demise.

Dr. Alfred E. Kranes: Would it be proper to ask Dr. Smith whether the heparin used here might have been responsible for this?

Dr. Smith: I think it might have been. We give large doses to all these patients. This represents a calculated risk in these severely ill patients, who may have hypertension and diffuse vascular disease. Although this represents the first serious complication of the procedure in our 12 patients to date, it illustrates that vividialysis is still more than elective procedure.

GENERAL PRACTICE STILL THE BIG FIELD IN MEDICINE

In spite of the rapid expansion of specialization, and the growing number of Boards to qualify specialists, general practice still dominates the field of medicine. General practitioners are still responsible for 75 per cent of the total pediatric care, 76 per cent of the obstetric and a great deal of the surgical care. Yet, I can recall a very heated discussion in a hospital council meeting over the privileges which general practitioners should have in the hospital work; whether they should be allowed to remove tonsils, deliver babies, give anesthetics or do any type of surgery. Collins and Clark (The New England Journ. of Med., Jan. 22, 1953) very ably discuss "General Practice, Today and Tomorrow." They discuss the problems of general practice in rural areas in contrast with those in urban areas, and the functions of the general practitioner in different circumstances. This article which is in two parts (second part published later), closes with attempt to define what is meant by "general practice." It would pay any doctor who looks upon himself as a general practitioner to take time out and read these articles. They will be found in the County Medical Library. W.W.W.

THE BROWN SCHOOLS
For Exceptional Children

Year-round school, including Summer Camp, for children, tiny tots through teens, with educational and emotional problems. Six separate residence centers, both suburban and ranch, for homogeneous grouping; complete recreational and academic programs. Under the daily supervision of a Certified Psychiatrist. Full time Psychologist and Registered Nurses. Write today for View Book; full details.

BERT P. BROWN
President
PAUL L. WHITE, M.D., F.A.P.A.
Medical Director

P. O. Box 4008-J
AUSTIN, TEXAS

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics

We Specialize In Planter Box Materials

531 W. Thomas Road Phone CR 4-0211
Phoenix, Arizona

Park Central
Medical Building

Phoenix
Five Fifty West Thomas Road

See for yourself the many features offered the Medical profession in a building designed exclusively for professional occupancy.

Your inspection invited—For appointment telephone AMherst 6-8416

E. A. Hamilton, Designer and Manager

A Limited Amount of Space Available

Date of occupancy June 1st, 1953

The PRESIDENT'S *Page*

THE SIXTY-SECOND ANNUAL MEETING HAS COME AND GONE, AND A NEW PRESIDENT FOR THE YEAR 1953-54 APPEARS ON THIS PAGE. HIS CHIEF MESSAGE THIS MONTH IN ONE OF THANKS TO THE MEMBERSHIP OF ARIZONA MEDICAL ASSOCIATION FOR HAVING ELECTED HIM TO THIS HIGH OFFICE, AND HIS CHIEF HOPE IS THAT HE MAY PROVE WORTHY OF YOUR CONFIDENCE.

AS A REPRESENTATIVE OF YOUR SCIENTIFIC ASSEMBLY COMMITTEE DURING THE PAST YEAR, THE COMMITTEE AND I WISH TO THANK YOU FOR THE MANY VALUABLE SUGGESTIONS WHICH WERE MADE, AND THE HELP WHICH YOU GAVE. IF YOU PROFITABLY ENJOYED THE SCIENTIFIC SESSIONS IN TUCSON THIS YEAR, REMEMBER THAT THE PROGRAM WAS MADE SUCCESSFUL THROUGH SUCH ASSISTANCE, AND THAT EACH SUCCESSOR WILL WELCOME ANY AID YOU CAN GIVE. IF YOU HAVE WITHHELD CONSTRUCTIVE CRITICISM FROM A SENSE OF BASHFULNESS IN YEARS PAST, SIT DOWN NOW AND WRITE YOUR RECOMMENDATIONS TO THE NEW PRESIDENT-ELECT OR TO ME.

EDWARD M. HAYDEN, M. D.
PRESIDENT ARIZONA MEDICAL ASSOCIATION

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 MAY, 1953 NO. 5

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

EDITORIAL

STEP BACK BUD, I'M A FIRST AIDER

There is a well known story concerning the physician who was called upon to administer first aid to the victim of an automobile accident. He had no more than started his services when some burly individual elbowed his way through the crowd, rudely pushed the doctor aside, saying "Step back, Buddy, I'm a first aider, I'll take over." This is somewhat humorous in fiction but becomes considerably less so in fact.

A physician acquaintance of ours almost had just such an experience recently. He happened on the scene of an accident shortly after its occurrence and stopped to render whatever aid possible. He found an old man lying unconscious beside a partially wrecked car with his head lying in a pool of blood. His daughter was bending over him wringing her hands and vainly trying to recall him to concsiousness but doing nothing whatever about the bleeding. The physician hastily improvised a pressure bandage from the materials he had at hand, stopped the bleeding and brought the old man back to consciousness, examined him for other injuries and took charge generally of the medical situation much to the relief of the investigating officer who had meantime arrived. He stayed with the patient until the ambulance arrived. Upon its arrival about 25 minutes after the accident, he attempted to tell the ambulance driver and his assistant what had been done, the condition of the patient, information which he felt would be useful to them in the transportation of the patient to the hospital. He was completely ignored, the attendants rushed in to the patient, turned him over immediately on his back without investigating as to whether he had a back injury and unceremoniously ripped off the bandage which the physician had applied. At this point the investigating officer interrupted them saying the patient had been prepared by the physician for transport whereupon the physician received the comment with no note of apology that a different type of bandage was needed. Since the first aiders had obviously taken over, the physician immediately took his departure.

This incident is related in some detail since it illustrates an event which we hope does not occur often. It points up to the fact that is is highly desirable that a large number of people be trained in first aid but points up perhaps also that one aspect of this type of work may have been neglected. This physician was not shown courtesy which should have been due

any citizen who had done his best under the circumstances. Perhaps it was due to thoughtlessness and we, being charitable, prefer to believe so. However, it might not be amiss for first aid courses to include at least one lecture which might be entitled "Courtesy to Other First Aiders, Even if They are Doctors."

Believing that the following article would be of interest to the Physicians of Arizona many of whom knew and loved Dr. Coleman we have asked for and received permission from its author Bert Fireman for its republication. It appeared originally in Mr. Fireman's column UNDER THE SUN in the Phoenix Gazette, February 10, 1953.

Editor

UNDER THE SUN

From the lounge of the Kiva Club we could look out over the Valley of the Sun and across the indefinite dusty course of the Salt River to the Sierra Estrella mountains looming in the southwest and the Santans to the southeast. Lunch was over; my usual hearty noonday meal topped with three or four cups of coffee, but the doctor had sprinkled his smoked tongue and tomatoes heavily with salt and then only toyed with the food. He was more interested in talking about that part of Arizona beyond the Gila River, so when I had finished we moved around to soft seats overlooking Southern Arizona.

Since he first came to Arizona a few winters before, Dr. Claude C. Coleman of Richmond, Va., had been tremendously interested in the strip of Arizona south of the Gila. In history it is known as Gadsden Purchase. Just 100 years ago, seeking a low-level railroad route to the Pacific, the United States government invested $10 million in the parched strip of ground stretching from the Rio Grande to the Colorado. James Gadsden, amabassador to Mexico and railroad speculator, was accused of extravagence in the transaction. He has been vindicated a hundred times. Last year, for example, Arizona counties located within the Gadsden Purchase produced $76 million in minerals alone.

Dr. Coleman was a healthseeker, and winter visitor. In his suite in the Westward Ho he kept oxygen flasks for relief when asthma attacks came on. His regular breathing was labored. He could only walk short distances. A nurse-secretary and Mrs. Coleman were always near to attend him.

Despite the asthma that made him an invalid, Dr. Coleman was studying the early history of Arizona as vigorously as his health permitted. His particular interest was in the doctors, both military and civilian, who had ministered to the sick and injured of the region before statehood.

Somewhere in the past Dr. Coleman had stumbled onto the fact that at least three great military doctors—Leonard Wood, Walter Reed, and J. B. D. Irwin—had practiced in Arizona early in their notable careers. Before Dr. Walter Reed discovered the cause and manner of transmission of yellow fever, he was highly regarded as a private practitioner in Arizona. Both Doctors Wood and Irwin won the Congressional Medal of Honor for heroism during the Indian wars in Arizona. General Wood also had been a cattle rancher in Arizona. He was a leader of the Rough Riders in the Spanish American War and a capable military administrator of occupation forces in both Cuba and the Philippines following that war. After leaving Arizona, Dr. Irwin established the first tent field hospital on a battlefield. That was at the battle of Shiloh in Tennessee during the Civil War. His innovation greatly reduced deaths from battle wounds.

UNFINISHED WORK: Dr. Coleman and I had lunch together several times during the last two winters, sometimes at the Kiva Club and once or twice in his suite when he wasn't feeling well. Last winter's cold and wet weather didn't help his poor health, but he optimistically had expected to return this season for more sunshine and warmth. Two weeks ago his secretary wrote me that Dr. Coleman had died on Jan. 9, at the age of 73.

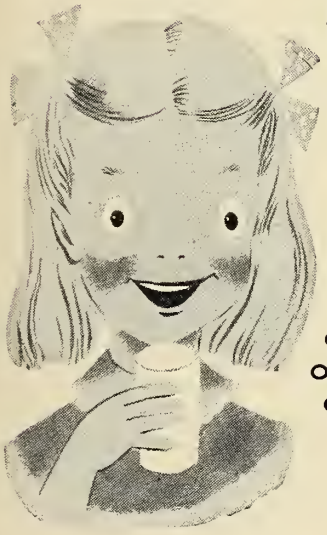
The death of the former neurosurgeon and professor of neurosurgery left his *planned book on the doctors of Gadsden Purchase* unfinished. *But in the December issue of the Virginia Medical Monthly there was published a paper he had written as a preliminary outline of the projected book.*

In it he had traced the history of the Gadsden Purchase and touched on the careers of outstanding territorial doctors. After telling about Doctors Reed, Wood and Irwin, he went into detail on the exploits of Dr. George E. Goodfellow, the famous gunshot specialist of Tombstone's turbulent days. He probably had the greatest experience in gunshot wounds of the intestines of anyone in America, Dr. Coleman wrote, "but he lamented the fact that he could never cure a case



Children take it without the least bit of fuss...

SWALLOWED WHOLE



CHEWED— OR IN FOOD OR LIQUID



DISSOLVED ON TONGUE

- The Best Tasting Aspirin you Can Prescribe.
- The Flavar Remains Stable Dawn ta the Last Tablet in the Bottle.
- 24 Tablet Battle... 2½ gr. each 15¢

2½ gr. ⇨ 1¼ gr.

Groaved Tablets— Easily Halved



NEW FLAVORED

CHILDREN'S SIZE

BAYER ASPIRIN

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc., 1450 Broadway, New York 18, N.Y.

of gunshot perforation of the intestine." Dr. Goodfellow's greatest fame came as a pioneer in prostatectomy. He has been credited with being the first surgeon to completely remove the prostrate gland through a perineal incision. He reported 78 out of 80 such operations with complete success, "A most creditable record for any era. It was said he operated on many of his patients in the early days on a door laid across two whiskey barrels." Dr. Goodfellow later became chief surgeon for the Southern Pacific Railroad in Arizona and then Sonora.

Dr. Coleman noted the great strides in medicine in Arizona, where "not so long ago the doctor had to be as adept with a six-shooter as he was with the scalpel. Today they have many well-equipped hospitals and many prominent doctors, whose voices are heard in the councils of the national medical profession."

Among the famous "medicine men" of Arizona Dr. Coleman even listed Geronimo, the surly, vicious last leader of the renegade Chiriachua Apaches. Geronimo was no chief—but a medicine man who devoted most of his time to making bad medicine for the whites.

We'll miss those pleasant winter visits with the distinguished Virginian who was fascinated with the history made in Arizona by members of his profession.

BOOK REVIEWS

THE LITERATURE ON STREPTOMYCIN
By Selman A. Waksman, Rutgers University Press, New Brunswick, New Jersey, December 19, 1952. Price $5.00.

The handsomely bound volume contains 5,550 bibliographic references on streptomycin and the enumeration of these references occupies 440 pages of the book. The author index occupies 61 more pages and the subject index 44. This provides a total of 553 pages of reference material on streptomycin put up in a handsome blue binding with silver lettering. It seems that this would be very useful for reference libraries, especially in institutions where there is need for information on streptomycin for use in treatment or research. The ordinary practicing physician will probably not want to add it to his library but probably would be very glad to have it available in his medical association or hospital library.

LIVING WITH CANCER
By Edna Kaehele, Doubleday and Company, Inc., Garden City, N. Y., 1952. Price $2.00.

This book is a fascinating account, chronologically arranged, of experiences of a woman who almost died of cancer but didn't. Anyone who has come face to face with the stark realization of possible death will recognize here many of his own thoughts which have been put into print. It is interesting to note that this patient began to improve when she conquered her fear of death although it is a little hard to tell which came first.

There is one disappointment in the book; and that is that I believe the author has been unfair with her physicians and especially the radiologist. Althought she, in so many words, gives him a certain amount of credit for her recovery, one feels that this is done rather grudgingly and that in her heart she feels that she has been over treated or ill treated and has survived in spite of her doctors rather than because of them. As a matter of fact, speaking as a radiologist, it is my feeling that from her description of the treatment which she has had that her radiologist was rather heroic in giving her the heavy treatment which he did and if he had not done so it is doubtful if she would have survived.

There is no doubt that this is a book which will provide a great deal of encouragement to cancer sufferers. I feel that it should not be used indiscriminately, however, but should be judiciously prescribed. I, therefore, recommend that the physician read the book himself before recommending it to his patients. It is a small book and can be read in one evening.

ATTRACTIVE OFFICE SUITE FOR RENT
Suitable for Doctors and Accountants Offices
Available In June
J. CITRON, D.S.C.
311 W. McDowell Rd. — Phoenix, Arizona

WANTED—Young Assistant
For the General Practice of Medicine and Surgery
LOUIS P. LUTFY, M.D.
301 W. McDowell Rd.
Phoenix, Arizona
AL 3-4200

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M. D.

We should start one paragraph each month with the heading "ALVAREZ SEZ,—" since we quote him almost that often. . . . This month, in his small journal 'Modern Medicine', he editorializes on ROENTGEN THERAPY AND CANCER OF THE BREAST. His old friend at the Mayo Clinic, Dr. Stuart 'Tack' Harrington, has surveyed their results over a 30 year period. . . . If all cases are considered, the radiated ones did 8% better. If only those with no metastases in the axilla are considered, the ones NOT radiated did better. If there were axillary metastases, the radiated cases did slightly better. . . . The results are not encouraging.

The pendulum swings back, and in doing so it may knock a lot of people (and companies) down, perhaps. . . . 'Perhaps' is the word, since we are no more sure that the ANTI-CHLOROPHYL REPORTS are true than we are that the favorable reports (and advertising) were solid and reliable. . . . If it turns out that the destructive, scornful new opinions are factual, it will be one of the greatest sells (in more ways than one) of drug history. . . . It would seem wise to wait; then, if it still seems wise, look up the names of the people who first boomed chlorophyl as a deodorant and put them on a list.

Most of us know what we know about certain ANTIBIOTICS from drughouse literature, and it's a fairly good source too. . . . Some news comes, later, from medical journals. If the physicians who write for these use generic terms for the drugs, most of us would be frozen stiff. . . . Who would know that carbomycin could mean 'Magnamycin'? Most could guess that chloramphenical is "Chloromycetin', and that erythromycin is possibly "Ilomycin' or 'Erythrocin'. You'd have to scratch your head on oxytetracycline (of which Terramycin is a brand). . . . It might be easier to simply use the brand names, since most of the companies discovered the drugs.

Carroll Palmer, director of the T.B. Research Office, W.H.O. in Copenhagen, has shown that considerably diluting BCG VACCINE has little effect on the size or duration of the resultant tuberculin skin test. . . . Also, room temperature instead of refrigeration does not produce serious differences. . . . Further, the varying number of 'takes' in different areas of the world (often from single batches of vaccine) may be due to the effect of sunlight on the ampules. . . . This latter effect may not apply to vaccine made by the Research Foundation in Chicago, since they now use the lyophilized (dried) preparation instead of the liquid suspension.

Arizona has been remotely connected with AN ARTICLE IN THE JAMA, even tho it is 'post hoc, ergo propter hoc'. . . . Dr. U. V. Portmann of Tucson was former head of a department at the Cleveland Clinic, and wrote a paper with E. P. McCullagh on 'Developmental Defects Following Irradiation of the Ovaries in a Child'. . . . If he has other papers stacked away, I bet I know where he could have them published.

FLUORIDATED WATER has become not only scientifically approved but 'the mode'. How does one know? Easy — the bottled water companies are advertising it and supplying it.

The use of radioactive gold in treatment of CANCER OF THE PROSTATE is a novel method, not very well known. H. Dabney Kerr and colleagues of Iowa City report good early results, better than with other methods. . . . The part of the report which is most surprising and shocking is that which tells of the incidence of prostatic Ca. I'd never guess it, and maybe you wouldn't. Twenty per cent of men over 40, or a total of 3,000,000 men in the United States have prostatic Ca., so they say.

CALCIFICATION may occur in non-malignant lesions of the lungs, and is a differential point between them and cancerous tumors. . . . This difference is hard to see on regular chest films, but Good, Hood, and McDonald of Rochester, Minn., have shown that body-section radiography brings it out clearly. . . . If the lesion has no visible calcium, it is a point in favor of exploration.

Neostigmine has been shown to CONTROL SEX HORMONES in rats. It is hoped that the results may be transposed to humans, where the drug has numerous uses. Maybe it will have some effects on the growth of neoplasms. . . . It is interesting to speculate on how the new data fit in with the known effect which neostigmin (called prostigmin, or even physostigmine) has in starting a reluctant menstrual period.

In case you favor the use of the GOFMAN LIPROPROTEIN TEST, you might recognize at once the name of the place where they do them. . . . In case you think the tests are not definitive, or are too expensive, or in case you are indiffer-

ent about them, the name 'Cardiovascular Laboratory Section, The Institute of Medical Physics' would cause a raised eyebrow. . . . Who can be a medical snob, however, if the test turns out big?

Using a "LIE DETECTOR" instrument does not mean that one is a psychologist or a detective; one may be a dermatologist. . . . Finding the cause of a skin disease may require the talent of a Hawkshaw, but only recently Drs. Perry and Mount have applied one of the emotion-testing devices to a study of sweat glands and skin health. . . . An increase in electrical resistance results from an increased activity of the glands. It could give leads to diagnosis, and also to the use of drugs.

A columnist must be allowed an 'I told you so' every now and then, altho it probably should be limited to once a month, or some such ration. . . . About three years ago an odd report was noted in the Michigan State Medical Journal about a Detroit surgeon who SANDPAPERED ACNE with great success, and it was reported here. . . . The current Sat. Eve. Post tells the origin of the method which was started between 1942 and 1945 by a Dr. Preston Iverson of Philadelphia. He started using it on tattoo marks, then war 'tattoo' marks on the face, and then on various other superficial blemishes. . . . About two-thirds of the skin thickness is removed, and the glands and hair follicles remain.

The use of vitamin A to improve NIGHT VISION, or to correct a deficiency in dark adaptation, is of more than a dozen years duration. Dr. Jeans even had a measuring device by that time. . . . The newest angle is that such methylating agents as methionine and vitamin B 12 are an aid to utilization of vitamin A. . . . Oral administration of methionine has already been shown to improve dark adaptation, and probably by the means mentioned. The improvement begins in an hour and lasts 24 to 32 hours.

Graphs and pie-shaped devices are of great help in showing changes in statistics which would not be impressive by themselves. . . . We were surprised enough by some charts in 'Hospital Topics' to look again, and write this down. . . . The first was a graph with a black column for each year's average census in hospitals from 1934 to 1952. The steps rose from 830,000 to 1,293,000, with an irregular higher peak during the war. (It looked like a huge rise because the baseline was not zero, but 800,000). . . . The pie for 1952 had only three unequal pieces,—The smallest slice was the 3% of patients who were cared for in proprietory hospitals; the second largest slice was the 22% who were in non-profit hospitals; the huge part of the pie, in black, was the 75% who were in government hospitals. 'Pie figures' are astounding.

This month's MOST INTERESTING WORD applies to a product from our favorite laboratory, Abbott's. They won't like it if someone makes fun of it, but they chose the name 'Fumidil', and if it sounds like an epithet from Amos and Andy they have no one else to blame. . . . It doesn't sound like 'a new direct-acting amebicile antibiotic', but it is. . . . Again, say we, the names of drugs should sound like what they are—or at least not like something else (or certainly not like something funny). . . . Maybe they follow the course set by a public figure of the 1920's, who urged people to say anything they pleased about him as long as his name was spelled right.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 15th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 15th OF THE MONTH.

Material arriving after that date will be published the following month.

Symposium On Heart Disease

The Twenty-Fourth Annual Postgraduate Symposium on heart disease will be held at the St. Francis Hotel October 28, 29, 30, 1953.

The San Francisco Heart Association, which has presented this annual postgraduate series for twenty three years has this year invited five Northern California Heart Associations to participate in bringing to San Francisco a large contingent of distinguished guest speakers for the occasion. Sharing the planning with the San Francisco Heart Association will be the Heart Associations of Alameda County, Contra Costa County, Monterey County, San Mateo County and Santa Clara County.

Four guest speakers have already accepted the invitation to participate. They are Doctors Herrman Blumgart of Boston, Howard Burchell of Rochester, Minnesota, Robert L. King of Seattle, and Paul Wood, Dean of the Institute of Cardiology, London, England.

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona



MEDICAL & DENTAL

Bulletin

Published Monthly By

MEDICAL & DENTAL FINANCE BUREAU

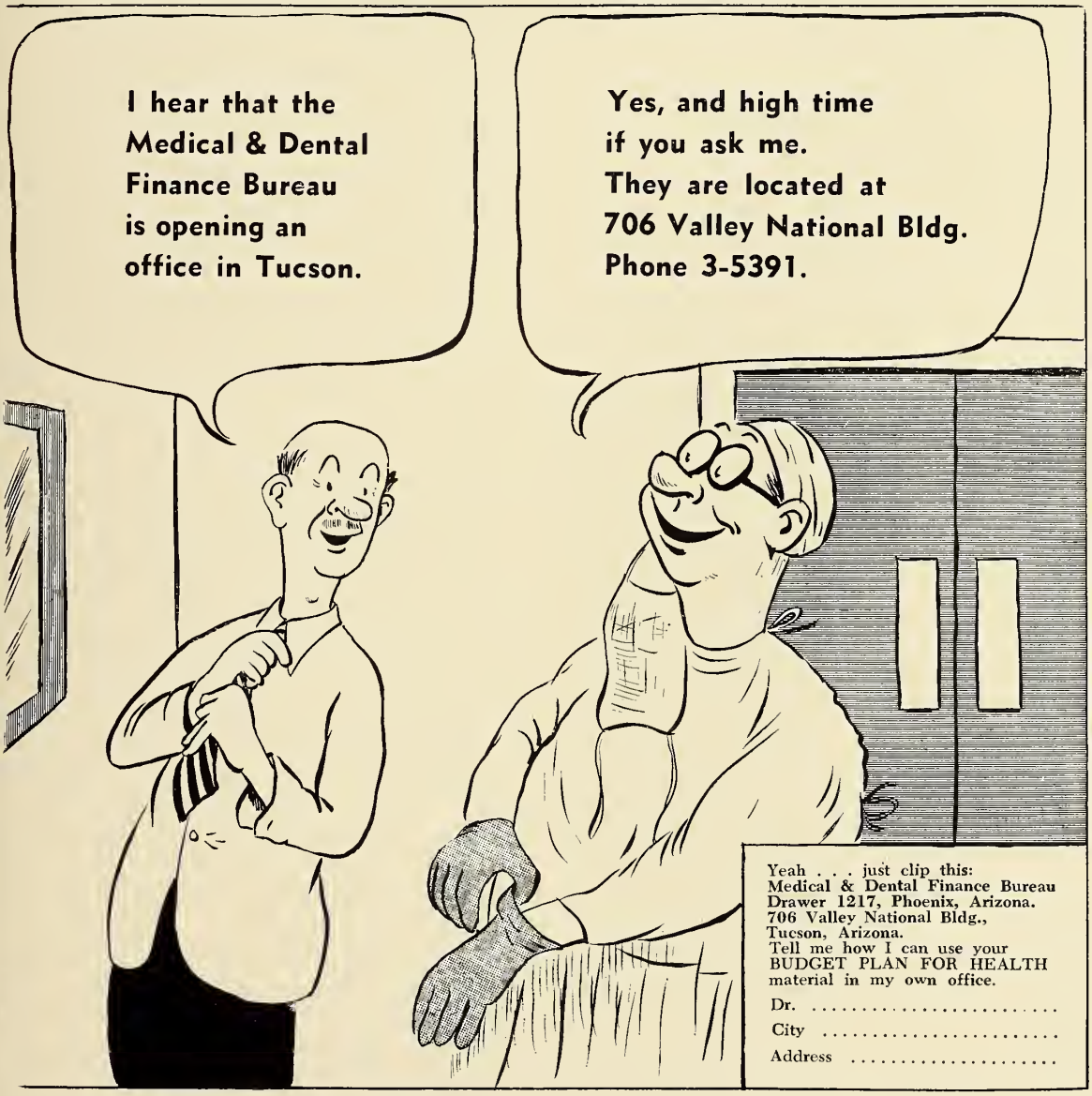
GEO. E. RICHARDSON, PRES.

HOME OFFICE:
FIRST STREET AT WILLETTA
ALPINE 8-7758

DOWNTOWN OFFICE:
407 PROFESSIONAL BLDG.
ALPINE 4-4688

Issued Monthly

Free to Practicing M.D.s



Yeah . . . just clip this:
Medical & Dental Finance Bureau
Drawer 1217, Phoenix, Arizona.
706 Valley National Bldg.,
Tucson, Arizona.
Tell me how I can use your BUDGET PLAN FOR HEALTH material in my own office.

Dr. .....

City .....

Address .....

The Arizona Medical Association, Inc. LEGISLATIVE COMMITTEE 1952-53 ANNUAL REPORT

It is with pleasure that the Legislation Committee of this Association submits its annual report relating to its activities before the Twenty-First Legislature of the State of Arizona, first regular session. It should be pointed out that following deliberation of Council, due to the many complexities involved in the activation of a new legislature, it was determined expedient not to sponsor nor support too many bills during its first regular session. Also it was realized that during its first session following numerous referendums adopted by the people in the general election many bills would be introduced requiring deligerate consideration and consuming appreciable time of this body.

CORONER'S INQUEST AND VITAL STATISTICS

H.B. 141 relating to coroner's inquest, amending Section 44-3405, Arizona Code of 1939, sponsored by your Association, enacted into law by the Twenty-First Legislature of the State of Arizona, first regular session, signed by the Governor, March 28, 1953, becoming Chapter 78, provides that the coroner may issue subpoenas for witnesses, returnable forthwith, or at such time and place as he may appoint, which may be served by any competent person. He must summon and examine as witnesses every person who, in his opinion, or that of the jury, has any knowledge of the facts, and he shall summon a qualified physician to examine the body and, if necessary, conduct an autopsy, and give an opinion as to the medical cause of death unless such medical examination has already been performed and such opinion has already been rendered. All statements shall be signed by a qualified physician. A witness served with a subpoena may be compelled to attend and testify, or be punished by a justice of the peace. Provided, however, that anything in this Act to the contrary notwithstanding, the securing of a medical examination, autopsy, and certification as to the medical cause of death hereinabove provided, unless directed by the jury, shall be discretionary with the coroner if no qualified physician be readily available at the place where the inquest is held.

H.B. 142 relating to vital statistics, amending Section 68-606, Arizona Code of 1939, and amending Chapter 68, Article 6, Arizona Code of 1939, by adding Section 68-606a, likewise sponsored by your Association, enacted into law by the Twenty-first Legislature of the State of Arizona, first regular session, signed by the Governor, March 28, 1953, becoming Chapter 79, in conection with "referral to coroners," provides:

(a) Any person having knowledge of the death of a human being, which, for the purposes of this Act shall include a fetal death, in a case in which no physician was in attendance at the time of death, shall forthwith report to the nearest peace officer all information in his possession regarding the death and the circumstances surrounding it. The peace officer receiving such report shall immediately make or cause to be made an investigation of the facts and circumstances surrounding the death and report the results thereof to the coroner.

(2) The local registrar shall forthwith refer the following cases and all information he has regarding the same to the coroner: 1. when no physician was in attendance during the last illness of the deceased; 2. when a physician in attendance is physicially unable to supply the data, or, 3. when circumstances suggest that death was caused by other than natural causes.

(c) Hospitals shall forthwith report to the coroner all information they have regarding hospital deaths where there is no attending physician.

(d) When circumstances suggest to the physician in attendance that the death was caused by other than natural causes, he shall refuse to sign the death certificate and forthwith report all information he has regarding the same to the coroner.

As relates to "Investigation as to the cause of death and signing of death certificate" the law now provides:

(a) The coroner shall immediately make or cause to be made an investigation of the facts and circumstances surrounding the death to determine if the death was natural, accidental, suicidal or homicidal, and its medical cause. He shall direct the medical examiner or any other qualified physician to make such examination of the body as may seem necessary including, if needed, an autopsy to determine the medical cause of death. Such medical examiner or other qualified physician shall promptly report his findings to the coroner and sign the death certificate certifying as to the medical cause of death together with giving such other infor-

mation as may be required by the state registrar. If the coroner be a physician he may personally make such medical examination and sign the death certificate as to the medical cause of death. After receipt of information as to the medical cause of death and after investigation concerning the facts and circumstances surrounding the death, the coroner shall also sign the death certificate stating whether the death was natural or accidental, or, if the information gained by the coroner as the result of these investigations is such as to cause him to suspect that the death was suicidal, homicidal or occurred suddenly under such circumstances as to afford a reasonable ground to suspect that the death was occasioned by the act of another by criminal means, he shall so certify on the death certificate together with giving such other information as may be required by the state registrar. The county attorney shall be apprised by the evidence gained and the conclusions reached as the result of such investigations and the complete file thereon shall be made available to the county attorney.

(b) Where an autopsy has been performed pursuant to this Act, no cause of action shall lie against any coroner, physician or other person for requesting or participating in such autopsy.

(c) The board of supervisors, upon request of the county attorney or coroner, may appoint and fix the compensation of a regular medical examiner for performing the medical examinations and certificates required by this Act. The person appointed must be a qualified and practicing physician. In the event no regular medical examiner is appointed and the coroner is not himself a qualified physician, the board of supervisors shall provide for appropriate compensation for the qualified physician employed to conduct the medical examinations, certifications, and, if needed, the autopsies required to be performed by this Act.

(d) Phovided, however, that anything in this Act to the contrary notwithstanding, the securing of a medical examination, autopsy, and certification as to the medical cause of death hereinabove provided shall be discretionary with the coroner if no qualified physician be readily available either at the general locale of the death or the proposed place of burial or the locale of the mortuary if the body is to be sent to a mortuary in preparation for burial.

For many years there have been complaints by private citizens, members of the medical profession, the State Board of Medical Examiners, State Department of Health and Vital Statistics concerning so-called "mystery deaths" occurring the the various counties, which are those deaths that should be carefully investigated to determine their cause, but for some reason or another were not so investigated. Complaints regarding these activities fall usually into two categories. The first is that of law and order. Private citizens and others believe that due to laxity in the statutes concerned, many crimes have actually been ignored and passed off as death by "natural cause" when, as a matter of fact, there may have been a suicide or homicide involved which would have been revealed by a medical examination. Second, medical men in our state are anxious that our Department of Vital Statistics more accurately reflect the true medical cause of death in order that the information gained by the study each physician gives to these vital statistics as to health trends and tendencies in our state be accurate.

Presently at a coroner's inquest a physician *may* be called upon and may be asked to certify as to the cause of death. Chapter 78 *requires* that a qualified physician shall be summoned to examine the body, and, if necessary, conduct an autopsy, and give an opinion as to the medical cause of death unless such medical examination has already been performed and such opinion has already been rendered. All statements shall be signed by a qualified physician. This will insure first, that a doctor aid the coroner and the coroner's jury in discovering whether the death is natural or accidental, or on the other hand suicidal or homicidal, by giving the coroner and his jury the benefit of medical knowledge as to the true medical cause of death. Second, it eliminates having the doctor make a decision as to whether the death was suicidal, homicidal or natural, a job for which law officrs are trained and doctors are not, usually.

Further the law presently provides for reporting to the coroner by private individuals and the local registrars a death that seems suspicious. Chapter 79 adds to these two groups the requirement of reporting to the coroner hospital deaths where there is no attending physician (if there be one), seems to be from other than natural causes. The purpose of these additions is to in-

clude those emergencies brought into a hospital where the hospital has no knowledge of the patient or the cause of his death and also to include deaths where th attending physician suspects foul play.

Presently the law permits that once a death is reported to the coroner, he must make an examination to determine the cause of death and may employ a physician so to do. Chapter 79 requires the coroner to employ a doctor to make this examination including, if necessary, an autopsy, and certify as to the medical cause of death. After the medical examination the coroner is then in a better position to determine the true cause of death. The now existing law also gives protection and immunity to the coroner, the doctor and all others who may be concerned in requesting an autopsy if the same is necessary and in performing it.

COMPACT FOR WESTERN REGIONAL COOPERATION IN HIGHER EDUCATION

Most of you will recall that your Association last year supported legislation which was enacted into law (Chapter 104, March 25, 1953), for ratification and approval of the Compact for Western Regional Cooperation for Higher Education with the states of California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming and the Territories of Alaska and Hawaii. Through this action it is believed that the western states, or groups of such states within the region, who individually do not have sufficient members of potential students to warrent the establishment and maintenance within their borders of adequate facilities in all of the essential fields of technical, professional and graduate training, nor do all of the states have the financial ability to furnish within their borders institutions capable of providing acceptable standards of training in all the fields mentioned, cooperatively can provide acceptable and efficient educational facilities to meet the needs of the region and of the students.

Subsequently the Governor appointed a commission comprising three resident members of this state, namely: Dr. O. H. Wedel, 3828 Calle Cortez, Tucson; D. W. Melick, M.D., 15 East Monroe, Phoenix; and Mr. Alexander A. Raisin, P.O. Box 2164, Phoenix, to administer the duties prescribed. As a result of their deliberations that body introduced S.B. 115, passed by the Twenty-First Legislature, first regular session, signed by the Governor, March 25, 1953, becoming Chapter 59. This measure had the support of your Association and provides for the operation and administration of the compact, the processing and certification of qualifying students by the Board of Regents of the university and State Colleges of Arizona, requiring contract with students certified and designating terms, conditions and collection thereof, and providing for an appropriation to be expended during the forty-first and forty-second fiscal years for expenses of the Arizona members of the commission ($4,800); contribution by the State of Arizona, to the general expenses of the commission ($7,000); tuition for medical students ($37,500) tuition for dental students ($9,600); and tuition for veterinary students ($6,000).

The board shall, within the limitations and on the terms as fixed by the commission and by this Act, determine the number of students desiring to take advantage of the educational facilities afforded by the compact; and from those indicating a desire to participate, select a group in each allowable professional field equal to three times the number possible for participation in a given school year. In making such selections the board shall only include such students as: (1) who have at least average scholastic attainment record; (2) who are citizens of the United States; (3) who have been actual bona fide residents of the State of Arizona for at least the last ten (10) years, and, (4) who have completed such preliminary education as will qualify them for admission to the professional or graduate school provided by the commission.

The names of those students, selected as aforesaid, shall be certified by the board, via the Arizona members of the commission to the commission, along with such data as the commission may require.

Before certifying a student to the commission, as herein provided, the board shall enter into a written contract on behalf of the State of Arizona with such student, said contract to cover the methods and terms of repayment by said student to the State of Arizona, said contract to be on such terms and conditions and in such form as provided by the board, except that said contract must provide:

(1) That said student shall within one (1) year after completing his professional education and internship, begin the practice of his profession within the State of Arizona, except if said stu-

dent engage in postgraduate studies and do so without a lapse of more than one year following the completion of his professional course, then said practice shall be commenced within one (1) year after the completion of said graduate studies:

(2) That if said student engages in the practice of his profession within the State of Arizona, as herein provided, his indebtedness to the State of Arizona may be discharged as follows: (a) by the payment to the State of Arizona of all sums expended by the State for and in behalf of such student, or (b) for each two (2) years of practice there shall be discharged his obligation for each one (1) year of study for which a portion of the cost thereon was paid by the State of Arizona;

(3) That if said student fails to complete the required course of professional study, or if said course of study is interrupted by one school year or more for a cause or causes other than for a total disabling illness or injury, or if said student fails to practice his profession within the State of Arizona for such continuous time as to completely discharge his obligation, the entire sum paid for or on behalf of said student by the State of Arizona and not repaid or discharged as herein provided, shall be due and payable forthwith, together with interest at the rate of four per cent (4%) per annum from the date or dates of disbursement by the State of Arizona.

LEGISLATION OF INTEREST TO MEDICINE

There were, of course, other bills introduced sponsored by various groups or individuals the contents of which were of interest to medicine; (a) the testing of dairy cattle for brucellosis (b) creating the Department of Public Health and Welfare (c) temporary disability benefit insurance for protection against loss of earnings due to sickness and accidents (d) appropriating funds for the construction of an addition to the State Tuberculosis Facility at Tempe (e) providing for minimum standards relating to the operation of the State Department of Public Health (f) provision for the vivisection of animals (g) providing for a depository for blood, bones, eyes and cartilage (h) providing for improved standards in the licensing of chiropractors (i) appropriating additional funds in connection with purchase of site, construction and equipment of a State laboratory (j) defining narcotic drugs (k) creation of the office of State Medical Examiner and (l) providing for the regulation of the practice of optometry. Council was not requested nor did it take any official action on these measures. Certain objections were raised to the optemetry bill and through consultation a satisfactory amendment thereto was realized. Regarding the bill creating an eye and bone bank, this measure was introduced near the close of the session and while of special interest to the doctors, it was considered wise to withhold support until certain legal entanglements can be wisely and adequately removed. On the recommendation of Council study will continue through the coming months and it is the hope that a proper bill may be readied for introduction during the second regular session of the legislature. The bill pertaining to vivisection was introduced by a new legislator hailing from Pima County, and was not considered adequate. You will recall that the Association sponsored similar legislation a few years ago which passed the House but died in committee of the Senate. At such time as the need for vivisection has been adequately established the committee will give further serious consideration to another attempt to have enacted into law such worthwhile legislation. It is of interest to note that the bill relating to temporary disability benefit insurance was not introduced by the Employment Security Commission of Arizona, which body following previous hearing attended among others by the members of the medical profession, had determined on the basis of its findings that the need therefor had not been sufficiently established to warrant further consideration at this time.

Two bills were introduced and passed relating to workmen's compensation; one providing for a more equitable adjudication of claims and the other setting aside one per cent of premiums collected for rehabilitation. Following conferences planned to be called during the coming months, further amendments to the act will be proposed in line with need as previously expressed and contained in report of the Industrial Relations Committee of this Association, submitted last year.

"COMMENDATION"

It is again gratifying to observe that those bills actually sponsored by your Association successfully cleared the legislature and became law on signature of the Governor. Much credit is due and given to our Association Attorney, Mr. Ed-

ward Jacobson, whose able advice and astute leadership has immeasurably raised within legislative circles the prestige of the medical profession of this state during the past several years. Your Legislation Committee is humbly proud and wishes to express its grateful appreciation to the Governor, members of the Twenty-First legislature and others of our Association who have labored arduously during the past several months in the interest and support of sound health legislation.

Respectfully submitted,

Jesse D. Hamer, M.D.
Chairman
Legislation Committee

MALPRACTICE INSURANCE SURVEY

During the past several weeks your Central Office has been deluged with inquiries regarding professional liability (malpractice) insurance rates in Arizona. It set out to obtain factual information from qualified experts in the field and this informative report is prepared in the hope that it might contain answers to some of the questions in the minds of many of our medical doctors.

As you are all aware, an increase in (malpractice) rates in Arizona was effected in the fall of 1952. It should be borne in mind that prior to this time the base rate in this state for such coverage with $5,000/15,000 limits, one-year term, was $25, which was constant and remained unchanged from 1931 until 1952—a very favorable situation in the light of a very unfavorable experience nationally in the steadily increasing number of suits filed against doctors alleging malpractice. The base rate was increased from $25 to $35 with a 50% surcharge added for major surgery. In addition there is a 50% surcharge for partnership coverage for such physicians desiring to be covered not only for their individual practice but also for their partnership liability, which under such conditions, of course, is recommended.

I believe it is recognized among our doctors that the Arizona experience has been somewhat better than that in our neighboring state of California, and our rates indicate this. For example, where our base rate is now $35 for $5,000/15,000 limits, the base rate in California is $100, San Francisco and Alameda County; $90 in Los Angeles County and $75 in the remainder of the state. New Mexico has a base rate of $50 and Utah a base rate of $45. Additional states whose recorded rates are in excess of the current Arizona base rate are:

Colorado	$50	Ohio	$40
District of Columbia	65	Oklahoma	50
Florida	45	Oregon	45
Indiana	60	South Dakota	60
Minnesota	60	Tennessee	40
Montana	50	Washington	60
Nevada	50	Wisconsin	50
New York	Below	Wyoming	50

NEW YORK: Reports basic premiums $5,000/15,000 limits) increased 100% since 1947. Present rate, Non-surgery, $86; X-ray Therapy (superficial), $96; Deep and Superficial, $106; Electric-shock, $126; Surgical only, $116; plus X-ray Therapy $126 to $136; plus Electro-shock $156; and Cosmetic Plastic Surgery, $146.

It is observed there is a constant tendency toward more suits and higher claims. Inflation has found its way into the trial courts as well as every where else and expenses continue to mount all along the line. In view of all of these factors it would appear that the new rates, while somewhat higher than those previously charged, may be considered reasonable.

Let us look at some Arizona statistics. The St. Paul Mercury Indemnity Company for the first nine months of 1952, reports physician-surgeon premium receipts of $9,517 against losses of $6,923. United States Fidelity and Guaranty Company, writing considerable malpractice coverage in this state, shows a record of all classes of malpractice insurance, which includes physicians, surgeons and dentists as follows.

Year	Premium Receipts	Losses
1949	$10,099.75	$14,099.25
1950	10,090.09	7,848.39
1951	10,508.72	24,670.56
1952	14,395.97	84,401.26

NOTE: It is pointed out that the 1952 loss experience reflects reserves for cases in various stages of litigation, principally one involving dentists; however, the general outlook for this year (1952) is anything but favorable.

These figures are recited to help you better understand the problems faced by all such insurance carriers and may very well be one of the reasons why the American Casualty Company withdrew recently from writing business in Arizona. You may recall that The Medical Protective Association withdrew from Arizona several years ago and has not seen fit to return to date. I think this particular phase of our survey will convince most of us that the malpractice business is not particularly a profitable one—even in Arizona.

The malpractice insurance market is an uncertain one with only a few companies actually writing such coverage in the state. The leaders are: St. Paul Mercury Indemnity Company; United States Fidelity and Guaranty Company; General Accident; American Employers and Lloyds of London.

Frequently our Council has been asked to consider the procurement of a group malpractice policy sponsored by the Association. It hasn't been recommended on good authority to date. In the first place it is questionable whether such group coverage could be procured from a reputable company at any real saving to the doctors, and second, on the basis of present day experience it must be held in mind that should such coverage be procured and the loss experience prove adverse, it is always possible the carrier might withdraw and at such time it might be impossible to interest other companies to write in Arizona.

A survey completed in November of 1952, among the state medical associations participating, disclosed nineteen had in effect sponsored professional group liability insurance and fifteen had not. Of the former group three had received notice of intention of the carrier to cancel the master policy certificates. The number of physicians covered per individual group contract ranged from a low of 150 to a high in excess of 14,000. From comments noted there would appear to be a national trend among major malpractice insurance carriers to withdraw from the field of group coverage. Most every state reported an increase during the past five years in the number of malpractice suits filed.

Regarding partnership liability, a legal opinion recites that the criterion of a partnership is whether its members share in the profits and losses. If they do, then a real partnership exists, and each physician who is a member of the partnership should pay a 50% surcharge to include his partnership liability under his personal malpractice policy. This does not apply to physicians who only share office expense, keeping their own practice and income separate.

Many physicians have asked for a comparison of base rates over and above the minimum basic limits, so to accomodate this wish the following table has been developed.

Limits	Physician		Surgeon	
	1 Year	3 Years	1 Year	3 Years
$ 5,000/ 15,000	$35.00	$ 87.50	$ 52.50	$131.25
10,000/ 30,000	47.25	118.13	70.88	177.20
25,000/ 75,000	59.85	149.63	89.78	224.45
50,000/150,000	66.15	165.38	99.23	248.08
100,000/300,000	72.10	180.25	108.15	270.38

NOTE: These rates are for individual physicians or surgeons not performing X-ray or Radium Therapy. If partnerships are involved, and as stated before, they are subject to a surcharge of 50%. In Arizona, today only one company is known to write a three-year term policy at 2½ times the annual rate and that is St. Paul Mercury Indemnity Company.

Special recognition is given with grateful appreciation to Edward H. Bringhurst, President, Standard Insurance Agency, Phoenix; Conner Johnson of the Conner Johnson Co., Phoenix, and Blaine D. Shimmel, Attorney, Phoenix, representing a number of professional liability insurance carriers operating in this state, who collaborated in the preparation of this report, together with the Medical Society of the District of Columbia, supplying a portion of the statistics recited.

The Arizona Medical Association, Inc.
Robert Carpenter,
Executive Secretary

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.
We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

Arizona Pharmaceutical Page

Resolutions Nos. 2 and 4

WHEREAS

THE OFFICERS AND COMMITTEES OF THE AMERICAN MEDICAL ASSOCIATION HAVE BEEN OF GREAT ASSISTANCE TO THE MEMBERS OF OUR ASSOCIATION DURING THE PAST YEAR AND HAVE EXTENDED OUR COMMITTEES MANY COURTESIES IN ATTENDING OUR COMMITTEE MEETINGS AND INVITING US TO PARTICIPATE WITH THEM IN THE DELIBERATIONS OF SOME OF THEIR PROBLEMS AND

WHEREAS

THIS SAME COOPERATION HAS BEEN EXTENDED TO THE MEMBERS OF OUR COUNTY ASSOCIATIONS BY THE OFFICERS AND MEMBERS OF THE MARICOPA AND PIMA COUNTY MEDICAL SOCIETIES

NOW THEREFORE BE IT RESOLVED

THAT THE ARIZONA PHARMACEUTICAL ASSOCIATION EXTEND ITS THANKS TO THE MEMBERSHIP OF THE ARIZONA MEDICAL ASSOCIATION, THE MARICOPA COUNTY MEDICAL SOCIETY AND THE PIMA COUNTY MEDICAL SOCIETY FOR THE COURTESIES EXTENDED AND PLEDGE TO THEM THE CONTINUED COOPERATION OF OUR ASSOCIATION IN ALL ENDEAVORS HAVING FOR THE MUTUAL BENEFIT OF OUR ASSOCIATION MEMBERS AND THE PATIENTS WITH WHOM THEY ARE IN CONTACT AND

BE IT FURTHER RESOLVED

THAT OUR ASSOCIATION EXTEND TO THOMAS H. BATE, M.D., PRESIDENT OF THE ARIZONA MEDICAL ASSOCIATION THEIR SPECIAL THANKS FOR THE SEVERAL OCCASIONS HE HAS MET WITH US AND FOR THE SPLENDID MESSAGE HE BROUGHT TO US AT OUR PRESENT MEETING.

WHEREAS

THROUGH THE COURTESIES OF R. LEE FOSTER, M.D., EDITOR-IN-CHIEF OF ARIZONA MEDICINE JOURNAL, THE OFFICIAL PUBLICATION OF THE ARIZONA MEDICAL ASSOCIATION, AND MR. J. N. McMEEKIN, PUBLISHER OF SAID JOURNAL, THE PUBLISHING COMMITTEE OF THE ARIZONA MEDICAL ASSOCIATION MADE AVAILABLE TO THE ARIZONA PHARMACEUTICAL ASSOCIATION A PAGE EACH MONTH IN THEIR PUBLICATION AND

WHEREAS

THE OPPORTUNITY OF DISSEMINATING THE VIEWS OF ARIZONA PHARMACISTS THROUGH THIS MEDIUM, TO THE PHYSICIANS OF OUR STATE HAS BEEN OF GREAT VALUE TO OUR PROFESSION.

NOW THEREFORE BE IT RESOLVED

THAT THE ARIZONA PHARMACEUTICAL ASSOCIATION EXPRESS ITS THANKS TO DR. FOSTER, MR. McMEEKIN AND THE MEMBERS OF THE PUBLISHING COMMITTEE OF ARIZONA MEDICINE FOR THE OPPORTUNITY AND FAVOR AND EXTEND TO THEM AND TO THE MEMBERS OF THE ARIZONA MEDICAL ASSOCIATION THE USE OF THE PAGES OF OUR OWN PUBLICATION, THE ARIZONA PHARMACIST WHENEVER THEY MAY DESIRE ITS USE.

Woman's AUXILIARY



Pima County Health Quiz. Photographed at new Tucson High School radio studio.

PUBLIC RELATIONS

Community service projects in Arizona have remained as diversified as ever in maintaining healthy Public Relations. However, there has been an added unity of purpose amongst the counties this year that has made the Public Relations program important in its scope.

In a statewide program the emphasis has been placed on public service through health education radio programs. A total of nine such programs under auxiliary sponsorship have emanated from seven different Arizona cities. When it is remembered that there are but seven organized counties, it is a remarkable record indeed.

All participating counties have used the excellent electrical transcriptions loaned by the American Medical Association's Bureau of Health Education. The amount of good accomplished by broadcasting any of the twenty-five different health series available from the A.M.A. is interesting. It becomes amazing when the ease of procuring radio time and the transcriptions is noted. The consensus is "why didn't we do it before?"

Why we didn't do it before is not so important as why we are doing it now and why we must continue.

The dissemination of health or medical information by the lay press has reached an all time high. The fact that some of this information is presented with bias is unfortunate to say the least. It is almost impossible to pick up a newspaper or popular magazine these days without finding a reference to medicine or health.

"Scare" articles, premature announcements of so called cures or miracle treatments, and the one in a million, medical oddity, have a guaranteed audience. Editors have found that the more sensational the material, the more avid the readership, and so we have a rash of articles telling the public "all."

The picture painted in consequence, is that the fine old gentleman known as our doctor is in reality, quite an ogre. They would have one believe that he is a money-grabbing, fee-splitting character, who performs all types of unnecessary surgery, (or has a "ghost" do it) and either hasn't had enough post graduate training, or on

the other hand, is too highly specialized. He never makes a night call, and it is just too bad that he doesn't know about the newest miracle drugs, or the dangers of the antibotics, unless of course, he too, has read the last issue of "Blurp."

What this type of article fails to mention is that many are written by advocates of socialized medicine and others by members of pressure groups. The whole effect has been that seeds of distrust have been sown and self diagnosis made by the now "informed" patient are quite common. The all too familiar, "Doctor, I have thus and so-itis and need a shot of Penicillin," even though thus and so-itis would never respond to treatment with Penicillin, is the type of thing that has been directly spawned by these so-called revealing articles.

To combat the situation, we have simply taken advantages of the fact that the public has shown a great interest in health facts. We supply them with authentic, health information, advocated by the A.M.A. Our various programs are not so flamboyant as the type with which we are competing, but are none the less effective in their good taste.

Each series is composed of thirteen, 15 minute electrical transcriptions, giving out information on everything from tuberculosis and cancer to baby care and alcoholism. The eight, A.M.A. series used in Arizona this year, total 104 programs. This should go a long way toward bringing some of the biased medical literature into proper prospective, and give the laity some helpful information.

The ninth radio program sponsored by an auxiliary, is Pima County's Health Quiz for school children. This is the same type of program inaugurated last year by the auxiliary in the Tucson schools. It has met with greater cooperation from both the school system and the radio station, and a possibility of televising the Quiz next year, has been mentioned. This twenty-nine week, 15-minute program has been a time consuming project, as is the production of any direct radio program. Pima is to be congratulated on its efforts.

There is a place for every county in this project, and for every city with a radio station, and just one interested doctor's wife. The transcriptions from the A.M.A. are loaned express prepaid, and are available for the asking.

The public wants health information and the radio stations are actually pleased to give time for public service features. It is only with an enlightened public, that better Public Relations can be realized. It is our business to see that the proper type of health education is made available.

Mrs. John K. Bennett
Public Relations Chairman
Tucson, Arizona

ARIZONA'S GUEST OF HONOR AT WORLD MEDICAL EVENT



Dr. Clara S. Webster, Tucson, Arizona

Dr. Clara S. Webster, Tucson physician, has been designated by Governor Howard Pyle to represent Arizona at the First Western Hemisphere Conference of the World Medical Association in Richmond, Va., April 23-25, 1953. Along with physicians from other states who are 75 years old this year, Dr. Webster will be honored by leaders of the medical societies of the United States and Latin America.

Medicine's greatest advances will be commemorated at the conference. Dr. Webster names as the five most important advances she has witnessed: asceptic surgery techniques, identification of various disease germs, new cheomtherapeutic drugs, improved anesthesia, and hormone therapy. She believes that the factors which have contributed most to increasing the length of life are "pediatrics, advance in medical education and geriatrics, and she adds, "The progress made in the entire field of medicine is so phenomenal that I have often felt happy to have lived to witness it."

A.M.A. Inaugural Ceremony Will Be Broadcast By ABC

The American Broadcasting Company Radio network will carry the inauguration of Dr. Edward J. McCormick of Toledo, Ohio, as President of the American Medical Association on Wednesday night, June 3, it has been announced by A.M.A. headquarters in Chicago.

The inaugural ceremony at the 102nd Annual Session of the A.M.A. in New York City will be heard over more than 300 ABC stations in this country, Alaska and Hawaii. Except for some local variations because of station program schedules, the inauguration will be carried at 10-10:30 p. m. in the Eastern Time Zone and 9-9:30 p. m. in all other time zones.

The actual inaugural ceremony will take place Tuesday night, June 2, in the Hotel Commodore, but it is expected that practically all radio and television time that night will be disrupted by special news and film programs on the coronation of Queen Elizabeth. It therefore will be necessary to transcribe the program for a delayed broadcast on Wednesday night.

Also originating from the A.M.A. New York meeting this year will be the popular "Dr. Christian" radio program, featuring the well known actor, Jean Hersholt. This program, which will be staged and transcribed Tuesday night one hour prior to the inaugural ceremony in the Grand Ballroom of the Hotel Commodore, also will be re-broadcast on Wednesday night. It will be carried by the Columbia Broadcasting System.

All physicians who will not be in New York for the A.M.A. meeting are urged to watch the radio listings in their newspapers for the local broadcasting times of the ABC inaugural program and the CBS "Dr. Christian" show, both on Wednesday night, June 3.

ROCKY MOUNTAIN CANCER CONFERENCE

The Seventh Annual Rocky Mountain Cancer Conference will be held in Denver on July 8 and 9. As in previous years there will be eight outstanding guest speakers, and on the first evening a banquet and entertainment for both the doctors and their ladies. There is no registration fee for this Conference.

APPLY FOR

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years

$150 a Month for Partial Disability by Accident up to 6 months

$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses

$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY CO.

DWIGHT McCLURE
Telephone ALpine 3-1185

W. J. WINGAR
407 Luhrs Building, Phoenix

GEORGE B. LITTLEFIELD

PIMA COUNTY MEDICAL SOCIETY

James Malcolm Walsh, M.D., was elected to membership in the Pima County Medical Society on April 14, 1953. Dr. Walsh is engaged in general practice at the Phelps-Dodge Hospital in Ajo, Arizona.

Our speaker for the April meeting was Dr. James Barrett Brown, Professor of Clinical Surgery at Washington University School of Medicine in St. Louis. The subject of his talk was "Hemangiomas, Including Nevi," which was illustrated by lantern slides.

Robert B. Johnson, M. D., returned to civilian practice at 2430 E. Sixth Street, Tucson, on April 6th, after separation from the Armed Services.

Army Reviewing Physical Records Of 1,000 Priority 3 Physicians

The Army Surgeon General has asked area surgeons in the U. S. to review records of about 1,000 priority 3 physicians who were deferred for physical reasons prior to lowering of physical standards. A number of doctors in this group are expected to be found fit for duty. Under lowered standards announced last month, each case is decided on its own merits. Generally, the armed services are taking the position that if a doctor is physically able to carry on a private practice then he is fit for military service.

Since the Defense Department announcement on lowered standards, the Army has sent to Selective Service for re-evaluation the names of 739 deferred physicians in priorities 1 and 2. Of this group, 487 have received physical examinations.

A.M.A. Washington Letter

RADIUM and RADIUM D+E

(Including Radium Applicators)

FOR ALL MEDICAL PURPOSES

Est. 1919

Quincy X-Ray and Radium Laboratories

(Owned and Directed by a Physician-Radiologist)

Harold Swanberg, B. S., M. D., Director

W. C. U. Bldg. Quincy, Illinois

PATHOLOGICAL LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY X-RAY THERAPY

RADIUM THERAPY

CLINICAL PATHOLOGY TISSUE PATHOLOGY

ELECTROCARDIOGRAPHY BASAL METABOLISM

R. Lee Foster, M.D., Director John W. Kennedy, M.D., Radiologist

W. Warner Watkins, M.D., Radiologist

Diplomates of American Board of Radiology

Lorel A. Stapley, M.D., Consultant Pathologist

U. C. MEDICAL LIBRARY
JUN 30 1953
San Francisco, 22

Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA

U. C. MEDICAL LIBRARY
JUN 30 1953

ADVERTISED SOLELY TO THE MEDICAL AND ALLIED PROFESSIONS

Lilly

Pharmacologically Proved Biological Products

VOL. 10, No. 6 • JUNE, 1953 • TABLE OF CONTENTS — PAGE V



a standard measure
to avert or allay
allergic distress...

BENADRYL®



BENADRYL Hydrochloride
is available in a variety of forms—
including Kapseals,® 50 mg. each;
Capsules, 25 mg. each; Elixir,
10 mg. per teaspoonful;
and Steri-Vials,® 10 mg. per cc.
for parenteral therapy.

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 6 JUNE, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

PRESIDENTIAL ADDRESS

PRESIDENTIAL ADDRESS 215
Edward M. Hayden, M.D., Tucson, Arizona, President, Arizona Medical Association

ORIGINAL ARTICLES

TUMORS OF THE MEDIASTINUM 218
David State, M.D., Phoenix, Arizona
TREATMENT OF THE COMMON FORMS OF ARTHRITIS 221
L. Maxwell Lockie, M.D., Buffalo, New York

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 225
F. T. Fahlen, M.D., Phoenix and P. E. Rice, M.D., Glendale, Arizona

THE PRESIDENT'S PAGE

HOW TO IMPROVE PRESS RELATIONS 232
Edward M. Hayden, M.D., Tucson, Arizona, President, Arizona Medical Association

EDITORIAL

FIREWORKS INJURIES 233

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS. 236
Guillermo Osler, M.D.
CHANDLER, ARIZONA SITE FOR 1954 ANNUAL MEETING 234
STATE HOSPITAL CHANGES VISITING HOURS 234
ROCKY MOUNTAIN CANCER CONFERENCE 234
POST GRADUATE SYMPOSIUM 234
PHARMACISTS TODAY 240
Arizona Pharmaceutical Page
WHERE THERE'S BLOOD, THERE'S LIFE! 241
BLUE CROSS & BLUE SHIELD ANNUAL MEETING & ELECTION OF OFFICERS 242
THE AMERICAN SOCIETY OF X-RAY TECHNICIANS 243
ARIZONA ASSOCIATION OF NURSING HOMES 243
GENERAL PRACTICE STILL THE BIG FIELD IN MEDICINE 245
RECENT GOOD ARTICLES RECOMMENDED FOR YOUR PERUSAL 245
PNEUMOTHORAX AND ALTITUDE CHANGES 246

WOMAN'S AUXILIARY

CONVENTION 244
Mrs. Louis Hirsch, Tucson, Arizona

DIRECTORY

LABORATORIES XXIII
SANATORIUM DIRECTORY XXIV
DRUGGISTS DIRECTORY XXVIII
PHYSICIANS DIRECTORY XXXI

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 — 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Dermont W. Melick, M. D., Phoenix; Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Roscoe A. Gutekunst, M. D., Phoenix; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS; Howard C. Lawrence, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Walter V. Edwards, M. D., Cottonwood; Robert M. Matts, M. D., Yuma; Paul W. McCracken, M. D., Phoenix; William B. Steen, M. D., Tucson.

STANDING COMMITTEES

GRIEVANCE: Harry T. Southworth, M. D., Prescott; Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Hilary D. Ketcherside, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Otto E. Utzinger, M. D., Ray.

HISTORY & OBITUARIES: Hal W. Rice, M. D., Tucson; Harold W. Kohl, M. D., Tucson; Frank J. Milloy, M. D., Phoenix; W. Warner Watkins, M. D., Phoenix.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson; Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Jesse D. Hamer, M. D., Phoenix; Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; W. R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Myron G. Wright, M. D., Winslow; Leo Schnur, M. D., Grand Canyon.

MEDICAL DEFENSE: O. E. Utzinger, M. D., Ray; Ernest A. Born, M. D., Prescott; Preston T. Brown, M. D., Phoenix.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix; Edward M. Hayden, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix; Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., [illegible]

SCIENTIFIC ASSEMBLY: Edward M. Hayden, M. D., Tucson; Guy B. Atonna, M. D., Douglas; Joseph Bank, M. D., Phoenix; David E. Engle, M. D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook; Oscar W. Thoeny, M. D., Phoenix.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smith
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shettel
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 6 JUNE, 1953

Presidential Address*



EDWARD M. HAYDEN, M.D.

The occasion today of being formally declared President of your Association gives the speaker an opportunity to talk of things he has been dwelling on in thought for several years. Mention of these here it is hoped may cause some to pause and reflect on these and similar thoughts.

In recent years it has been customary at such an occasion to speak on the trend toward socialized medicine and similar forces of evil that disturb us from without. Today I would like to deviate a little from custom and present a few notions on self-improvement within the profession. This paper therefore will be an appeal for the preservation of the dignity, morality, and intelligent tolerance of the medical profession. As physicians we are individualists, but certain basic concepts should be acceptable to all of us.

It has been my good fortune to serve in various capacities on hospital staffs, in my own Pima County Medical Society, in your House of Delegates, and for the last two years on the Council of your Association. These various offices have permitted me more closely, perhaps, to observe the impact of recent social and economic changes on the practice of medicine, and to worry a little that the pressure of the changing times may lead us temptingly along the road of social reformers, with a lessened inclination to our responsibilities. It would seem that many high school students now contemplate a career in medicine with their eyes more closely focused on the dollar than on idealism. They think of a fairy-land of strict specialization in a fanciful field where a few hours of work a day for a few months a year will return a substantial income and give much time for pleasure. Our recent graduates of medicine seem more interested in the wealth of a community than in its needs for a physician. The younger men of today lack the experience of the thirties, when consulting a physician was a luxury one could afford only in serious illnesses. The ulcers we had then were few and were certainly not caused by the pressure of overwork and high taxes. It is rare today that a young man is starved out of a Community and has to make a lesser choice. Rather it is difficult for supply to keep up with the demand for young men fresh from internships and residencies. A good physician is worthy of a good income, but profit should be of secondary consideration. One should first of all derive his satisfaction from the care of the sick and

*Delivered by Dr. Edward M. Hayden, President of the Arizona Medical Association, Inc., at the Annual Meeting of the Association at Tucson, Ariz., Apr., 1953.

injured, and the pleasures of the mind that go with work well done.

It is difficult as one passes from year to year within the profession to tell how much the profession gains or loses in public estimation, and to compare internal conflicts from one decade to another. Perhaps long relationship with the profession may make one hypercritical of faults which crop up here and there that are detrimental to our interests as a whole, or we are becoming more conscious of the need for closer cooperation. In looking back it would seem that there is much less factionalism now than in the competitive thirties, and we have gained from this closer kinship. Certainly the demands for socialization of medicine caused us to lose stature. We were placed in the category of public servants who could be ordered about, legislated against, drafted into military service, and generally told what we might and might not do. Fortunately, counter-acting forces were simultaneously at work. The public was taking a keen interest in health for the first time, nurtured by excellent articles in newspapers and magazines on various disease conditions, and voluntary sickness and accident insurance programs received widespread utilization. Our own action against these forces was not of positive character. We owe much to our lay friends and the press. A gratifying observation has been the relative rarity with which complaints have been registered against our membership in our county and state grievance committees from a public now aware that such committees exist; and that when complaints of a serious nature are made, there are not infrequently several against one individual.

The dignity of the medical profession impressed me as a growing boy in Wisconsin. We seldom called a physician except in a real emergency, and I would judge there was probably one physician for every 4,000 population. When he came it was usually as an awe-inspiring human smelling of tobacco and iodoform, who soon restored calm to an hysterical household, an educated man who was highly respected and who had a mysterious knowledge of Latin and pills, who still drove the prettiest horses and carriage while others were experimenting with automobiles. My mother was the neighborhood consultant and occasional widwife, without pay except gratitude. She owned her own home "doctor-books", and despite her limited schooling had a remarkable insight for the serious conditions, and was prompt in calling a physician when needed. She was quick to defend him if a mother died in eclampsia or a youngster died of "blood-poisoning." Perhaps because of her feeling that physicians ranked with the clergy two of her sons became doctors of medicine. Our family general practitioner was a gruff-spoken but kindly man, who never to my knowledge sent out a bill, but probably collected his fees months after at a chance street corner meeting. He never would accept a fee from a teenage youngster of one of his patients who consulted him on his own for some minor worry, but was free with advice. As I progressed in my medical education he continued to give me fatherly advice, and I shall always owe a debt to his memory. I mention these things because most of us have had experiences which directed our lives and led us into medicine. Perhaps as we deal with suffering from day to day we forget the lay feeling toward the profession, the same respect that we once felt, and we forget the dignity which we must maintain, and perhaps that is partly why we must now employ public relations experts to influence the opinion of that segment of population which is discontent.

The question of morality, or excellence in doing what is right and proper, is closely allied with dignity and tolerance. We have certain obligations to our patients, to their families, and to our fellow practitioners. To the patient these include the immediate care; a careful evaluation of his illness, including recognition of one's own lack of infallibility and a willingness to ask for necessary consultations a weighing of treatment procedures to be sure that the good accomplished will overshadow possible harm; a justifiable fee commensurate with his ability to pay without hardship; and a serious attempt to keep abreast of medical advances.

The days of astronomical fees have passed. The man who was once well-fixed on an income over $10,000.00 a year now has not enough left after taxes to pay fees in the thousands for an ordinary surgical procedure or short medical illness. He can afford to pay more than the laborer or white-collar worker, who is usually protected by insurance of some type. It is rightfully recommended by your grievance committee that the patient be fully acquainted with all expense his illness may entail before surgery or pro-

tracted medical care is begun, to avoid misunderstanding later. The changing times, again, have forced us into being businessmen as well as physicians in order to meet overhead. In regard to the incurably ill, we are not morally obligated to prolong life while at the same time draining the finances of the remaining members of the family. Families will sometimes insist that everything possible be done, and should be informed of the needless sacrifice they are making. As our surgical and medical skills increase we find ourselves able to keep a patient alive in a vegetative condition for months or perhaps years on end, a condition to be deplored, as some one has said, as "meticulous uselessness." In geriatrics we are not obliged to put a patient whose days are numbered on an uncomfortably rigid regimen, with abstinence of all his small pleasures, so that he may live unhappily to the end. In pediatrics we are correcting many congenital abnormalities incompatible with life, but in some cases perhaps we are producing mental cripples from our handiwork. In our minds we should weigh the thought, are we doing these things for self-glorification or for the good of the patient and his family? And we should be frank with the family. The problem of what is right and proper is not one-sided, of course. The patient has obligations to his physician. He must be honest in presenting his history, faithful in carrying out recommended treatment, and truthful in estimating his ability to pay.

Tolerance is defined as the disposition to tolerate beliefs, practices, or habits differing from one's own. It is a quality that comes with maturity and the mellowness of age, but can be acquired by the young. The attribute of tolerance does not imply that we must be blind to all that is bad in our fellowmen. We should, however, be able to weigh the bad with the good, and not be too quick to pass judgment. Legal actions too often stem from a momentary expression of intolerance, when on impulse we make a critical remark against a patient's former physician. That physician may be doing more real good for more people than we are, but because of a difference in opinion or in training we may be tempted sharply to condemn him without hearing. Perhaps the patient has not presented us with all the facts but has maneuvered them about so as to cast a bad light on a former physician. When we disagree we should do so tactfully, so as to assure the patient that there may be many ways of accomplishing the same result, but that we prefer our own. Occasionally our referred patients tell us they left a certain doctor because he belittled their previous physicians whom they still held in confidence and esteem. In its way, that is poor public relations. The patient is entitled to a physician in whom he has confidence, and if it is our sincere belief that he has selected a harmful practitioner we must subtly replace the harmful individual in a way that is gentle and that does not cause too abrupt a rupture of his ties. Discrediting another individual implies in the patient's mind that you think him stupid for having made such a selection. Patience is a quality which helps to develop tolerance. I think the physicians we respect the most are those who are big enough to be patient with their colleagues, and with the personnel of their own offices, those of their associates, and those of the hospitals.

These comments do not mean that we should be philosophical to the extent that no steps should be taken to protect the public from fraudulent irregular practitioners or from physicians guilty of grossly unethical conduct. When a serious charge involves a member of our own profession the proper committee in your county society or state association should be informed.

Much can still be done further to promote the dignity, morality, and tolerance of the medical profession. Our various associations and specialty groups are busy writing and revising codes of ethics, but when finished these codes do not get down to the medical students and residents in specialties soon enough to prevent fixed patterns of thought and habit. Our medical educators should be encouraged to include separate instruction courses on ethics and customary procedure in curricula. And perhaps our own Association, working through our State Board of Medical Examiners, may some day be able to give each newly licensed doctor of medicine the information he needs to help him know what is expected of him in Arizona.



Original ARTICLES

TUMORS OF THE MEDIASTINUM

David State, M.D., F.A.C.S
Phoenix, Arizona

Introduction

Chest X-ray surveys of our adult population have brought to light not only silent lesions of the lung but also hithertofore unsuspected tumors of the mediastinum. Now that a significant number of these neoplasms have been removed surgically, it has become possible to determine their true nature, with particular regard to their life history, incidence of malignant transformation and predilection for certain anatomic sites within the mediastinum. With this newer knowledge, it has become possible to recommend appropriate forms of treatment.

The purpose of this paper is to review briefly the common tumors of the mediastinum and to present one patient whose clinical history emphasizes the problems of diagnosis and therapy.

Anatomic Considerations

The mediastinum is divided into 4 compartments.

1. Superior mediastinum extends from the thoracic inlet to an imaginery line extending from the angle of Louis posteriorly to the body of the fourth thoracic vertebra. The remaining compartments lie inferior to this line and are further subdivided into:

2. The anterior mediastinum, which is bound anteriorly by the undersurface of the sternum and posteriorly by the heart.

3. The middle mediastinum may be considered the visceral compartment, for it contains the heart and the major vessels coming to or leaving that organ, as well as the trachea, esophagus and associated lymph nodes.

4. The posterior mediastinum is bound anteriorly by the esophagus and posteriorly by vertebral bodies. Within this area run the spinal and sympathetic nerves, which emerge from the intervertebral foramens.

Pathology

The common tumors in the above described compartments are: (1) Superior mediastinum—a. goiter, b. bronchogenic cyst, c. parathyroid adenoma. (2) Anterior mediastinum—a. thymoma, b. teratoma, c. goiter. (3) Middle mediastinum—a. bronchogenic cysts, b. lymphoblastoma, c. pericardial cyst. (4) Posterior mediastinum—a. tumors of neurogenic origin, b. fibrosarcoma, c. lymphoblastoma.

Tumors of unquestioned benignancy, or malignancy, such as bronchogenic cyst, fibrosarcoma and lymphoblastoma, present no real problem from the standpoint of their ultimate course. However, the true nature or incidence of malignant degeneration of three common mediastinal tumors, thyoma, teratoma, and neurogenic tumors, has only recently become better known and it would be worthwhile to emphasize the following facts concerning these tumors.

(1) Thymoma—approximately 75% of thymomas are malignant. Histologically it may be impossible to differentiate those that are benign from those that are malignant.

(2) Dermoids or teratomas—11-20% become malignant.

(3) Neurofibroma—approximately 40% are, or become malignant.

It should be pointed out, that even those tumors which are benign histologically may, by their continuous growth and compression of vital structures, finally cause the death of the host. In this respect mediastinal tumors resemble intracranial tumors.

Symptoms

All tumors of the mediastinum whether benign or malignant, may produce identical symptoms, for the difficulties the patients experience are those due to pressure of the tumor on structures of the chest. The severity and rapidity with which symptoms occur are related primarily to the rate of growth of the tumor. The common findings are therefore pain in the chest, cough, dyspnea, hoarseness, dysphagia and symptoms of venous compression. If the tumor is small and produces no compression the patient will experience no symptoms at all.

Diagnosis

To date the majority of these tumors have been chance findings in X-rays of the chest, taken on

Read before the Staff Meeting of Memorial Hospital, November 17, 1952.

apparently well individuals. Plates taken in the P A and lateral projections usually establish the fact that the tumor is in the mediastinum and also informs the physician in which anatomical compartment of the mediastinum the tumor is situated. The patient should also receive fluoscopic examination to determine the presence or absence of pulsations of the tumor and if any question of the vascular nature of the tumor exists (ie aneurysm) angiocardiography should be employed. The presence or absence of calcification within a mediastinal tumor should be sought for, because its presence usually points to a teratoma, or mediastinal goiter. Calcification of the wall of an aneurysm arising from the ascending portion of the aorta should suggest the possibility of a luetic origin. If the neoplasm arises in the posterior mediastinum, detailed pictures of the spine in this region should be taken to determine the possibility of intraspinal extension of the tumor. In rare cases it may be necessary to do a diagnostic pneumothorax to elicit the true nature of the tumor. If a tumor is solitary and unilateral, the chances are it is benign; conversely, if the tumor causes bilateral widening of the mediastinum, it is most likely malignant (ie. lymphoblastoma).

Treatment

All patients with mediastinal tumors should have them removed surgically. The exceptions to this rule are (a) a poor risk patient, with the increased risk being due to some pathological state other than the mediastinal tumor (b) if a diagnosis of fusiform aneurysm of the ascending aorta is made and the patient is asymptomatic, (c) if a diagnosis of malignant lymphoblastoma can be made by biopsy of readily available lymph nodes. In these cases radiation therapy should be given.

It may be difficult for the physician to advise surgical extirpation for a mediastinal tumor in an apparently well individual. However, if he keeps in mind that many become malignant and secondly that a benign neoplasm may cause death by continued growth, he will readily see that the welfare of his patient is best served by advocating removal. Too, the surgical mortality and morbidity are lowest when the tumor is small and diagnosed early. Routine therapeutic preoperative radiation of mediastinal tumor should be condemned. It should only be used where the diagnosis of malignant lymphoblastoma is certain. In all these cases, its use results in unnecessary delay and secondary changes due to irradiation may make surgical removal of the tumor quite difficult.

Report of a Case

The following case report highlights some of the problems of diagnosis and treatment in a patient with an anterior mediastinal mass. *Mrs. N. G., a* 62-year-old white female was admitted to Memorial Hospital, Phoenix, Arizona, on 9-14-52. She complained of dyspnea of 2 years duration. The shortness of breath had been so severe for 4 months prior to hospital admission that she was practically incapacitated. She also noted an increasing sense of pressure over the upper anterior portion of the chest. This patient did not have any cough, hemoptysis or ankle edema.

The past history was significant in that she had three previous thyroidectomies, the first in 1926, the second in 1932 and the last in 1950. The primary thyroidectomy had been for an enlarged thyroid gland with hyperthyroidism. The second operation was for recurrence of an enlarged gland and hyperthyroidism. Following this operation the patient noted hoarseness and weakness of her voice and also an inspiratory wheeze. The third operation in 1950 was primarily for dyspnea and although some gland was removed, the patient did not experience any relief. In 1944 an X-ray of the chest was taken as part of routine

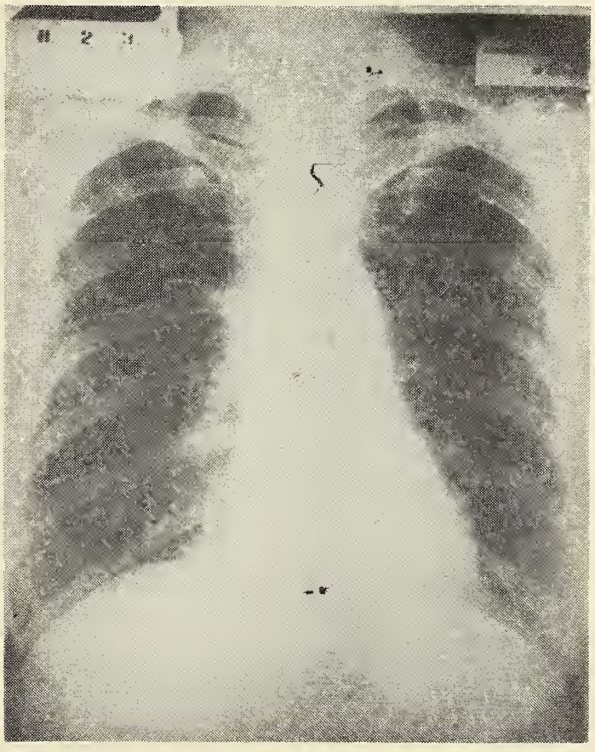


Figure 1—X-ray of chest taken in 1944. This was interpreted as negative.

pre-employment examination and the X-ray was interpreted being negative. (Fig. 1).

Examination at this hospital admission revealed a well developed, well nourished white female, who was obviously dyspneic at rest. Her voice was hoarse and she had a marked inspiratory wheeze.

The other essential positive findings were (1) Pupils reacted to light and accommodation. There were no "eye signs" of hyperthyroidism. (2) Multiple previous thyroidectomy scars, with no palpable thyroid gland. (3) Slight motion of the right vocal cord only. (Indirect laryngoscopy). (4) Inspiratory wheeze, but with good air entry into both lungs and no pulmonary rales. (5) Heart findings essentially negative. B. P. 160/90 and no peripheral edema.

1 Blood and urine essentially negative.

2 Mazzini test for lues negative.

3 Electrocardiograph—normal but showing evidence of abnormal rotation of the heart axis.

4 Venous pressure—6.0 cm. of water.

5 Vital capacity 2000 cc., with rapid expiration.

6 Walking ventilation—moderate dyspnea on walking at rate of 180 ft. per minute for 3 minutes.

7 X-rays and flouroscopy showed non-expansile mass in the anterior mediastinum, with small areas of calcification (Fig's. 2 and 3).

It was felt that the dyspnea was definitely not of cardiac origin, but that the two components of vocal cord paralysis and anterior mediastinal masses were causative. Because of the large size of the mediastinal mass and the progression of the dyspnea, it was felt that this tumor should be removed first. The subsequent clinical course would indicate if any further surgery to improve the laryngeal airway would be necessary.

On 9-16-52 through a sternal splitting incision a large fleshy lobulated mass, measuring 8.0 cm. in diameter was removed from the anterior mediastinum. A tracheatomy was also done because of the preoperative vocal cord involvement. Postoperatively, she got along nicely and was discharged on the 7th post-operative day with the tracheotomy tube removed.

Her convalescense was gratifying. She lost the sense of deep pressure in the mediastinum and she became less dyspneic. Within a month after surgery her voice became stronger and her right vocal cord moved better, indicating that pressure on the right recurrent laryngeal nerve was at least partially responsible for the right vocal cord paresis.

The gross appearance of the tumor is shown in Fig. 4. Histologically the neoplasm proved to be thyroid tissue showing diffuse hyperplasia with

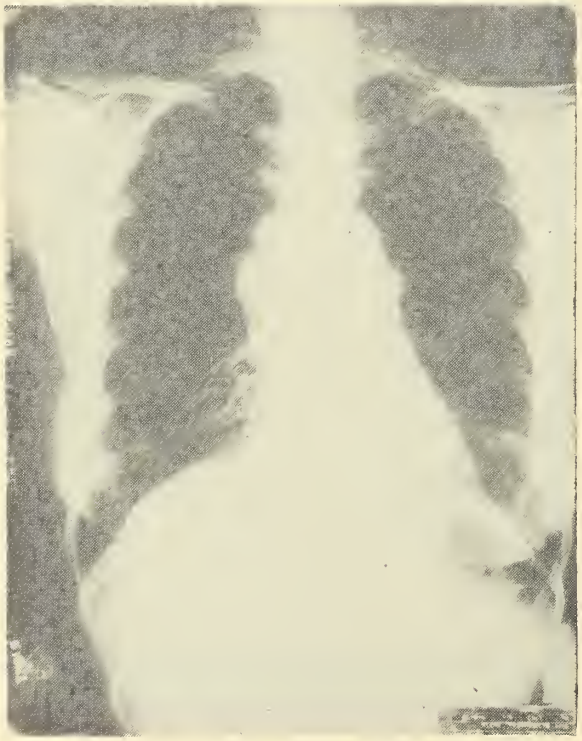


Figure 2—P.A. X-ray of chest showing large mediastinal tumor.



Figure 3—Left lateral x-ray of chest, showing antero-superior position of mediastinal tumor.

focal hemorrhage, fibrosis and calcium deposition.

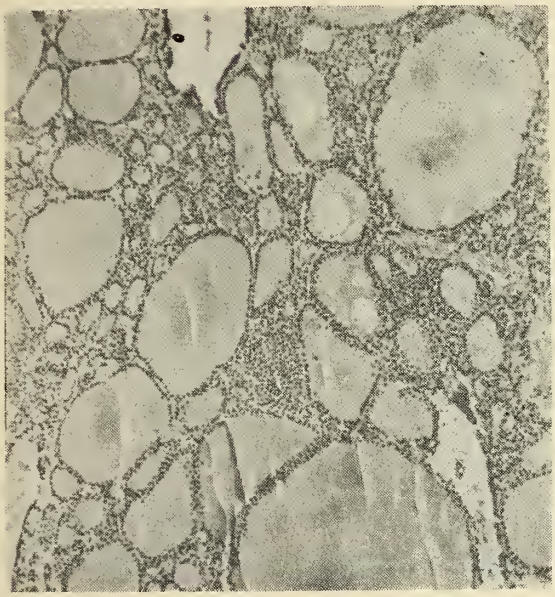


Figure 4—Histologic picture of mediastinal tumor. It presents the picture of thyroid with diffuse hyperplasia.

Summary

1 A brief review of the various types of tumors occurring in the mediastinum has been presented.

2 These neoplasms, whether symptomic or asymptomatic should be removed, because of (a) their potential malignant character and (b) the fact that continued growth of a benign tumor may cause death from compression of vital organs. The possible exceptions to this recommendation are (1) poor risk surgical patient, with the risk being due to some pathological state other than the mediastinal tumor, (2) a known case of mediastinal lymphoblastoma and (3) an asymptomatic patient with a fusiform aneurysm of the ascending aorta. (3) A case report, illustrating the clinical picture and results of an anterior mediastinal mass is presented.

BIBLIOGRAPHY

1. Blades, B., Mediastinal tumors. Report of cases treated at Army Thoracic Surgery Centers in the United States. Ann. Surg. 123: 749, 1946.
2. Heuer, G. J., and Andrus, W. D. The Surgery of mediastinal tumors. Am. J. Surg. 50: 143-224, 1940.
3. Rusby, N. L. Dermoid cysts and teratomata of the mediastinum. J. Thoracic Surg. 13: 169-222, 1944.
4. Kent, E. M., Blades, B., Valle, A. R., and Graham, E. A., Intrathoracic neurogenic tumors. J. Thoracic Surg., 13: 116-161, 1944.

TREATMENT OF THE COMMON FORMS OF ARTHRITIS

L. Maxwell Lockie, M.D.*
Buffalo, New York

It is important to remember that arthritis is only a symptom and not a disease. It can be compared to fever which we know is a symptom of many underlying conditions. In the same way, arthritis may be a manifestation of any one of forty or fifty common types.

A physician is fortunate if his patient happens to have manifestations of arthritis in the hand, as the joints which are involved are excellent indicators of the type of arthritis from which the patient is suffering. It helps one to start off with a pretty good answer concerning the diagnosis. For instance, the hand in rheumatoid arthritis characteristically shows involvement of the proximal interphalangeal joints and the metacarpal phalangeal joints, as well as swelling of the ulnar side of the wrist. Also, there may be fluid present in any of these involved joints and in the tendon sheaths on the back of the hand. In osteo-arthritis it is the distal interphalangeal joints which may be involved and in about ten per cent of the cases they will have involvement of the proximal interphalangeal joints. In no cases are the metacarpal phalangeal joints afflicted. Also, none of the points of osteoarthritis have fluid.

The treatment of rheumatoid arthritis is as varied as there are numbers of physicians treating the disease. It is necessarily so, because we do not know the etiology or cure, and each patient is an individual problem. The following plan is one carried out in the treatment of approximately four thousand patients suffering with rheumatoid arthritis seen over the past twenty years.

1. Complete bed rest for a period of at least three weeks. This is best carried out in a hospital or nursing home. It amounts to a period of education as well as intensive treatment under close supervision. There are so many factors involved that a physician should see these patients many times in order to establish satisfactorily the ideal plan. Also, the patient can be given good treatment and training in the Physical Therapy Department.

The bed should have a firm mattress such as a felt or hair mattress or a 5/8" plyboard placed under an innerspring or rubber mattress. The plyboard should not be placed under the hair or felt mattress as it would make it too hard. A pil-

*Professor of Therapeutics, Medical School, University of Buffalo. Chief of Arthritis Clinics, Buffalo General Hospital, Children's Hospital, Consultant in Arthritis, E. J. Meyer, Memorial Hospital.

Read before Arizona State Medical Association Annual Meeting, May 1, 1952.

low or rolled-up blanket should be put under the covers at the foot of the bed, so that the bedclothes will not press down on the toes. One pillow for the head is all that should be used. However, the patient may sit up in bed for three-quarters of an hour three times a day while eating meals and three other times a day for a welcome change of position. Every hour on the hour, the patient should push aside the pillow from under the head and take a series of six or more deep breaths. This encourages a person to maintain a straight spine. No patient benefits by having a number of pillows tucked under the head and shoulders as it tends to produce a curvature and certainly keeps down pulmonary ventilation.

It might seem advisable to prolong the rest until the activity of the rheumatic process subsides, which may go on for several months. Then the patient is encouraged to get out of bed gradually and sit in a proper type of chair for increasing periods. Gradually walking is introduced, using good arches.

2. Infra-red heat. Using the the common 250 watt infra-red bulb, 15-20 minutes, two or three times a day at a distance of thirty inches helps to produce vasodilatation and a sense of pain relief to the affected joints. The heat should not be any closer than thirty inches even though many patients do not think enough heat is produced.

3. Aspirin or sodium salicylate are the best drugs for relief of pain, using 0.6 gm. four times a day. At no time should codeine be used as it produces mental irritability and constipation which complicate an already serious situation.

4. Iron in some form is advisable as most patients have a mild anemia. However, in many cases it does not help and it may be necessary to give several blood transfusions.

5. A vitamin preparation of some type should be prescribed from the beginning as most patients feel that it is an important part of therapy. If the physician does not suggest it, the patient always ends up by taking some anyway.

6. Gold in the form of myochrysine or solganol is an effective means at our disposal today to help keep down the spread of this form of arthritis. Myochrysine, being a water-soluble form of gold, is easy to handle. It is given at weekly intervals using a ¾" 24-gauge needle, injected into the deltoid muscle. Start with 10 mg. the first week; 20 mg. the second week; 30 mg. the third week; and 40 mg. the fourth week. Continue using 40 mg. each week until a total dose of 500 mg. has been given. At that time, a decision must be reached as to whether or not it should be continued. If the patient seems to tolerate the drug well, it may be continued for another six to eight weeks. Or, if the patient has done well, the time interval may be increased so that 40mg. every three weeks is used. There are several toxic manifestations which must be watched for. The most common symptom is glossitis. Next in frequency is dermatitis. Purpura is the one serious complication which must be looked for at each visit. There are a great many other rare complications which might occur. If the complication is mild, merely stopping the drug is sufficient. But if it is severe, BAL must be used. During the course of the use of the gold, urinalysis and complete blood count, including platelet count, must be done every three weeks. The platelets are usually first affected if a person is sensitive to gold.

7. No patient with rheumatoid arthritis should be allowed to sit in a lounging davenport or chair, but should use an occasional-type or straight-back chair.

8. Straight spine is most important. Therefore, every hour on the hour the patient should be instructed to stand up and take several deep breaths. It calls the attention of the patient to the fact that the spine should be straight.

9. Although there are many people who feel that vaccine is of no value, it is my feeling that small doses, such as 4,000,000 organisms, of hemolytic streptococcic vaccine given subcutaneously at weekly intervals is of help as part of treatment. When given in this amount, no reaction occurs. It is useful in an out-patient department where there are so many patients requiring treatment, they cannot be watched carefully enough to give gold or other reaction-producing agents. In a trial with one hundred patients who had been on weekly injections of vaccine, normal saline was substituted unknown to any of the group except the author. Within six weeks, these patients were in more pain and many of them were so restless that sedatives were necessary. Many more prescriptions were written for relief of pain while these people were on the placebo injections. At the end of three months, again vaccine was used with definite improvement in most patients. Naturally, as the only form of treatment, vaccine by no means fills this order, but is is a useful adjuvant.

10. The mental attitude is extremely important.

These patients should never be misled as to what can be done. There are always favorable changes which can be discussed with the patient at the time of each visit. The family should be cognizant of the seriousness of this type of arthritis and encouraged so that a favorable attitude toward the patient can be maintained. Psychotherapy in many of these people is as important as any part of treatment.

11. Cortisone and ACTH afford relief of signs and symptoms in almost all patients to a varying degree. However, the progress of the disease continues despite constant administration of either. But, there are many cases where either should be given; especially to children suffering with juvenile rheumatoid arthritis; to those who have a severe exacerbation from time to time; to those who need more help for rehabilitation; and to that group where it is absolutely necessary for a wage-earner to continue on the job. It is practical to give it if the patient responds favorably to small amounts. That is, 75 mg. of cortisone or less per day, or a comparable amount of ACTH. The dosage of ACTH is not given here because newer purified forms are becoming available. The side effects which must be looked for are Cushing's syndrome, elevated blood pressure, elevated blood sugar, occurrence of ulcer and coronary disease, fluid retention and increased mental stimulation. Then, when it is stopped, withdrawal symptoms must be controlled. To my knowledge, cure of rheumatoid arthritis has not been effected by either substance.

12. Recently, Hydrocortone has become available for local use in painful, swollen joints of rheumatoid arthritis or osteoarthritis. It is also available in very limited amounts for systemic use. The beneficial effects can be obtained with lower doses than with cortisone, and with fewer side effects.

OSTEOARTHRITIS

Osteoarthritis is a degenerative type of arthritis affecting the neck, spine, fingers, knees and hips.

1. Inasmuch as 90 per cent of patients are overweight, a first suggestion for treatment is reduction. This can be done either by giving a very low diet, such as 840 calories per day, thus allowing the patient to cheat a little and still lose a little per week. Or the patient may be instructed to eat a normal breakfast, to eat normal amounts of meat, fish or fowl, and then three quarters as much of all other things which are eaten or drunk during the day. This allows the patients to maintain their same shopping, cooking and eating habits.

2. Acid acetylsalicylic or sodium salicylate in small amounts usually gives considerable relief of pain. Codeine is not encouraged.

3. A thyroid extract, 0.06 gm. per day, helps the patient to reduce as well as to increase metabolic processes.

4. Infra-red heat. Using the common 250 watt infra-red bulb, 15 to 20 minutes, two or three times a day, at a distance of 30 inches helps to produce vasodilatation and a sense of pain relief to the affected joints. The heat should not be any closer than 30 inches even though many patients do not think enough heat is produced.

5. Paraffin baths are especially useful when there is pain in the hands. This is easy to do at home, using four pounds of ordinary canning paraffin and four ounces of mineral oil. Place in a large double boiler. When melted, at approximately 126 degrees, the hands should be dipped in and out until a thick coating of paraffin forms. Paraffin should be allowed to remain on the hands for 30 minutes, at which time it is removed and replaced in the double boiler. It should be repeated once daily.

6. If the hands are involved, no knitting, tatting or crocheting is allowed. Prolonged walks are discouraged if the back or knees are involved.

RHEUMATOID SPONDYLITIS

One should remember that the diagnosis of rheumatoid spondylitis can be made by X-ray of the sacro-iliac joints. This condition may exist years before any symptoms occur. The secret of success is to maintain a straight spine. The following plan of treatment helps:

1. The patients should wear modified Taylor back brace at all times except when in bed.

2. Deep-breathing exercises should be taken every hour on the hour, whether indoors or outdoors.

3. X-ray therapy is used for the relief of pain. It does not stop the progress of the disease.

4. Salicylates will make the patient more comfortable.

5. Muscle relaxers, such as curare or tolserol, help the patient to attain and maintain the straight posture more easily, especially in the early stages.

GOUT AND GOUTY ARTHRITIS

Acute Attack

1. Bed rest until the acute manifestations subside. Usually 48 hours is adequate. It will shorten the attack.

2. Colchicine should be used in the form of tablets, 0.5 mg. (1/120 grain), given one every hour until nausea, cramps or a loose bowel movement occurs. Then it must be stopped. If diarrhea ensues, paregoric may be given, 4 cc. (1 teaspoonful) every hour in a little water, until diarrhea ceases. The colchicine may be repeated after 48 hours in half this dosage; if therapeutic response does not seem to be satisfactory. It is best not to use the liquid preparations containing colchicine. Also, the earlier colchicine is started, the quicker and more satisfactory the response will be.

3. Local measures. Glycerin park locally over the affected joint seems to be the most effective application. It is made by pouring a small amount of glycerin between two layers of cotton. This is packed around the affected joint and left there for a period of 4 to 6 hours. In some cases, hot or cold compresses may be equally beneficial.

4. Diet—low purine, low fat and high carbohydrate during this acute phase. The substances which contain little or no purines (uric acid-forming) are milk, eggs, breadstuffs, cereals, tomatoes, onions, cheese and fruits.

5. Alcohol—best to abstain entirely.

6. ACTH, 40 mg., or cortisone, 100 mg., repeated in six hours, may be given if the colchicine does not seem to be effective promptly or in long-established severe, painful attacks. Colchicine must be given in small doses at the same time and continued for one week following.

Treatment After the Acute Attack

Inasmuch as gouty arthritis is a recurring form of arthritis, this phase is equally important.

1. Activity should be moderate in all respects. So many victims are those who are accustomed to outdoor sports that it is necessary to allow them to continue these in a modified way. However, badminton and tennis seem to provoke attacks more quickly than other forms of sports.

2. Colchicine, 0.5 mg. (1/120 grain), one to two per day as tolerated. This can be carried on for years without reaction. If an acute attack does ensue, the dosage can be stepped up to the plan outlined previously for an acute attack. Colchicine should be carried so that two or three tablets at hourly intervals can be taken immediately if an acute attack seems to be starting.

3. Properly fitting shoes are very important.

4. Diet. Low fat, moderate purine, adequate protein and high carbohydrate is the best general diet. However, the carbohydrates should be restricted if the patient is over-weight, as ideal body weight is best. The substances which should be avoided entirely are as follows: Liver, kidney, sweetbreads, herring, sardines and anchovies. Meat, fish and fowl contain approximately the same amount of purines and may be used in moderate portions four or five times weekly. It is permissible to drink tea, coffee and chocolate as desired. Purine-free foods (as outlined previously) can be eaten freely.

5. Alcohol may be used if necessary, in small amounts, preferable highballs or straight drinks, which are better tolerated. Wine, beer, ale, vermouth and champagne oftentimes precipitate attacks. That seems to be the reason so many people develop gouty arthritis during the holiday season.

6. ACTH and cortisone also are used by some patients to abort acute attacks. The program is the same as outlined previously for acute attacks. However, at this time there is no agreement among various clinics as to how effective it is. We have found it effective in 50 per cent of our patients unless large doses were used.

7. Large tophi should be thoroughly excised surgically.

Benemid is a new substance which possesses the ability to lower the blood uric acid without apparent reaction in the patient. It will lower the blood serum level about 30 per cent. Usually one to two grams is given in two divided doses daily. This is in addition to other therapy. It will not prevent the occurrence of acute attacks, but it seems to cut down the number. Also, it does not relieve an acute attack. Time alone will tell whether it will have a definite effect upon already existing tophi, or if it will prevent the deposit of uric acid in the tissues, which forms tophi. This may turn out to be a very useful addition in the treatment of gout and gouty arthritis.

From the above outline, it is apparent that each patient with arthritis must be handled as an individual problem. The majority of patients seen can be made more comfortable and many times the progress of the disease can be stopped.

PHOENIX Clinical CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE NO. 29492

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

First admission: A thirty-six-year-old American laborer was admitted complaining of pain in the chest.

About two years before entry, while lying in bed, the patient was suddenly seized with a severe pain in the left chest that radiated down the left arm. The pain lasted about four hours and was very severe. At intervals thereafter he noted a vague sensation of pressure in the chest and moderate dyspnea on exertion. About two weeks before entry he had a severe pain in the chest and left arm, which occurred during the night and lasted about an hour. The pain was less severe when he sat up, and was associated with a moderate amount of gaseous eructation. A sedative afforded relief and he was able to fall asleep. Shortly afterward he again awoke and voided a large amount of urine. On the following day he visited the Out Patient Department, where a general physical examination was said to be negative; the blood pressure was 135 systolic, 80 diastolic. A blood Hinton test was negative, and an x-ray film of the chest showed the lung fields to be clear. The heart was at the upper limit of normal in its transverse diameter and showed slight relative increase in the size of the left ventricle. The supracardiac shadow was normal, and the trachea was not displaced. An electrocardiogram was entirely negative. About a week before entry, in the afternoon while sitting at his work, the patient had another attack. This began as a sudden sensation of soreness in the left chest but was not severe enough to cause him to stop work. On the way home, however, he had a severe attack, during which he could do nothing but stand still for a minute or two. The pain at that time radiated down the left arm. He was compelled to take a taxi and on arriving home attempted to climb four flights of stairs, but was unable to do so. A physician administered some tablets that produced relief. The patient then tried to continue up the stairs but was compelled to stop frequently and finally succeeded in reaching his apartment after thirty-five minutes. He then lay down and went to sleep. The following morning he felt weak but was able to get up and go to work. During the succeeding week he had three minor attacks of chest pain and another very severe one, during which he entered the Emergency Ward. The last attack followed notification that his salary would be cut.

Examination showed a well-developed and well-nourished man lying flat in bed in no evident discomfort. There were no abnormal physical signs. The lungs were clear. The apex impulse of the heart was seen and felt in the fifth interspace in the midclavicular line. There were no murmurs.

The blood pressure was 120 systolic, 70 diastolic. The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red-cell count of 4,500,000, with a hemoglobin of 75 per cent. The white-cell count was 4800, with 71 per cent neutrophils. The stools were essentially negative. An electrocardiogram showed a PR interval of 0.16 second with normal rhythm; T_1 was low and slightly inverted, T_2 T_3 T_4 were upright, and Q_4 was present. A Graham test and a gastrointestinal series were negative.

Six days later another electrocardiogram showed a late inversion of T_1; T_2 and T_3 were upright, with a slightly high origin. The patient's condition remained good through his hospital stay, and on bed rest he exhibited no discomfort. On the twentieth hospital day another electrocardiogram showed a slightly low T_1, which, however, was practically within normal limits; T_2, T_3 and T_4 were upright, T_4 was diphasic, and Q_4 was markedly shortened. He was discharged on the twenty-fourth hospital day.

Second admission (one and a half months later.) The patient was followed in the Out Patient Department, where he complained of recurrent attacks of vague pain, always following

mild exertion. The pain occurred in the left chest and frequently radiated down the left arm. An electrocardiogram taken two weeks after discharge showed a low T_1, an upright T_4 and an M-shaped QRS_4. One and a half months after discharge he was seized with substernal pain that was much severer than usual. It lasted about an hour and was replaced by a dull constant ache in the chest and left arm. He went to sleep afterward and was suddenly awakened by a severe upper retrosternal squeezing pain even severer than the previous pain. There was an aching sensation in the left arm and jaw, and a splitting headache, and the patient was unable to lie back without aggravating the pain in his chest. He was placed in a taxi and immediately brought to the Emergency Ward.

Physical examination was again essentially negative. The heart was not enlarged but the sounds were distant in character.

The blood pressure was 110 systolic, 90 diastolic. The temperature was normal. The pulse and respirations were not recorded.

The blood showed a white-cell count of 10,000.

He continued to have substernal pain and vomited once after entry. Four hours later a few inconstant rales were heard at the bases of the lungs, but there was no change in his condition. The temperature remained normal. Although no significant change had been noted in his general condition, the patient suddenly died eight hours after entry.

DR. F. T. FAHLEN:

This case is presented with the idea of having the "discussants" accept it as one of deficiency of the coronary arterial supply, and to analyze its nature and locale.

We consider it a case of coronary insufficiency.

The history is practically airtight, and there is no other explanation for the symptoms as recorded.

For instance—there was no—

(1) Pulmonary embolus, nor atelectasis.

(2) There was no spontaneous pneumothorax.

(3) No mediastinal mass, inflammation, or emphysema.

(4) No aortic aneurism.

(5) No pleuritis, nor myositis.

(6) No neuroganglioma nor chromafin tumors.

(7) No disease of the bones, i.e. spine or ribs. Furthermore, in the gastrointestinal tracts there were no signs of (1) esophageal lesions, diverticula, ulcer or foreign bodies; no neoplasms, nor cardiospasm (2) No hiatus hernia, (3) No pylorspasm; (4) no gallbladder pathology nor stone; (5) no pancreatitis nor renal stone; (6) no peptic ulcers. It might be said that the fatal outcome as related could not have been due to any of the above.

This sets the case of coronary insufficiency. It was in part angio-spastic (angina pectoris), but some organic coronary vascular disease, sclerotic, atheromatous, embolic or thrombolic, must have also been present. In either case myocardial ischaemia resulted—most likely leading to infarction scarring and possibly even aneurism of the ventricle.

The case record is vague, and that other coincidental pathology existed is also possible—for instance—was there also (1) an aortic aneurism near the mouth of the aorta, dissecting in nature and later ruptured? (2) was there a myocardial neoplasm, abscess or bacterial, mycotic or parasitic infection? or (3) was there a terminal cerebral accident, such as a large embolus from the area of myocardial infarction, or a massive cerebral hemorrhage from a pre-existing cerebral vascular aneurism? You will recall that the history speaks of a polyuria and a splitting headache in the terminal phases of the case.

There is obviously nothing in the story upon which to base any one of these three possibilities.

Then, too, there is nothing decisive in the record to prove coronary occlusion, for instance—

(1) No congenital heart or valvular disease

(2) No syphilis

(3) No rheumatic fever

(4) No infectious mycotic nor trophic disease, such as beri-beri, nor is there any evidence of periarteritis, nodosa, nor other collagen disease.

(5) No metallic (lead, etc.) nor other poison nor toxicity.

(6) No record of hypertension, or hyperthyroidism.

Furthermore, the physical examination was not helpful, and chiefly of a negative type. This man was a young man, a laborer, well developed and well nourished; his urine was normal, his blood pressure varied from 135/80 to 110/90, and while the latter must be considered definitely low, it was not extremely so. The blood count was essentially normal, with a slight leucocytosis, 8800 to 10,000; no sedimentation rate

is given. The blood Hinton was negative; the pulse and respiration were normal, or not given; there was no fever; there were no pericardial friction sounds and no murmurs, all of which leaves but little positive objective evidence.

Thus it becomes all the more necessary to make something of the following recorded findings:

(1) The x-ray reports the heart at the upper limits of normal in the transverse diameter;

(2) There was relative increase in the size of the left ventricle;

(3) There was dyspnea on exertion;

(4) Finally, there were distant obscure heart sounds. These must all be regarded as evidence of a deficient myocardial action;

(5) There was the electrocardiogram.

In coronary blocking or occlusion, we would expect, besides the pain, evidence of muscular weakness, and there should exist abnormal physical signs, enlargements or dilitation of the heart with changes in the character of the first sound, and with evidence of shock. Second, various murmurs; third, pericardial friction rub, not always present fourth, drop in blood pressure, fever, leucocytosis and increased sedimentation rate; fifth tachycardia, fibrillation or other arrhythmias; sixth, evidence of cardiac weakness, such as dyspnea or acute pulmonary congestion; seventh, x-rays might show irregularity in contour, contractions or bulging of one of the chambers of the heart, especially in ventricular aneurism; eighth, we should expect great and positive help from the electrocardiograph; ninth, cerebral accidents are quite common.

An enlarged left ventricle was reported by x-ray and later denied on examination.

This might indicate a dilatation, and if so, is all the more important in confirming myocardial damage.

The dyspnea reported in a young man of muscular well developed physique, cannot be overlooked, and undoubtedly means in this case deterioration of the heart muscle, as there is nothing else to account for it.

The distant heart sounds recorded in the last phase of the case could occur with a weakened heart muscle, or be the result of pericardial effusion or hemorrhage into the pericardium-cardiac tamponade.

As to the electrocardiograph in general, it may of course be of great help, and then again, worse than useless and misleading in that it may show very slight abnormality or none, even in fatal cases.

In such cases, slight abnormalities in repeated electrocardiograms are full of meaning, as I am sure will prove to be the case here.

Frequent electrocardiograms taken serially in all leads are necessary.

The electrocardiogram is not an accurate index of the efficiency of the heart muscle. The cardiograph in our case is inadequate, but it was definitely abnormal, showing frequent changes which mostly reverted to normal. The T_1 low and inverted, the T_3 and T_4 of rather high origin, the Q wave being present and latter markedly shortened, and a QRS reported M-shaped are about all the abnormalities reported over a two-months terminal period in this case. However, if anything, they indicate an antero-septal ischaemia, apparently recent and varying in degree according to the occlusion in the coronary artery. Apparently this indicates that the heart picture was at least in part angio-spastic in nature.

The case was of two years duration, and even if partially anginal in character, must have resulted in extensive myocardial ischaemia and damage, such as infarction and sclerosis, which in itself may have caused the fatal issue.

In the final recording which terminated fatally, the picture remained essentially the same, the pain being more severe, the addition of a splitting headache and the patient dying within eight hours after entering. Strangely there is no electrocardiogram during this entire period. While as stated a cerebral accident might have been concurrent, there is no proof of this as there were no C N S signs reported. Ventricular rupture or a dissecting aneurism, rupturing into the pericardial sac, may have occurred, but there are several definite signs missing to establish such a diagnosis.

My diagnosis must therefore be coronary occlusion, due to extensive vascular pathology with myocardial infarction and sclerosis, the more recent fatal episode involving the anteroseptal area.

DR. PHILLIP E. RICE

This case seems to be so clearly one of myocardial embarrassment, with or without infarction, that I am suspicious of it. The only argument I can see against such a diagnosis would be the lack of positive electrocardiographic evidence. No sedimentation rates were recorded

but the white count rose to 10,000 at last admission, and there was a reduced pulse pressure: 110/90 against a former reading of 120/70. I am told that myocardial infarction can occur without electrocardiographic proof. Certainly something was seriously wrong; the patient died.

What other conditions could cause such recurrent chest pains? Pericarditis should have produced other evidence such as a friction rub, and there should have been found some underlying disease as a cause. It is true that at the last admission heart sounds were distant and the pulse pressure was low which might fit in with pericarditis with effusion. We are not told if the cardiac shadow was altered at this time. A dissecting aneurysm might also have caused this chain of events and the aching described in the left arm and jaw might have been caused by involvement of the left part of the aortic arch. However we have no history of hypertension and the patient is rather young for an aneurysm. Also one would expect the pain of aneurysm to be more in the back and of a more severe and prostrating character. Also bulging of the aorta should have been noted in chest x-rays. The pains of Angina Pectoris come on with exertion, so we can hardly call it this, since many times the pain occurred while at rest.

There is little evidence to point to the gastrointestinal tract as the site of the lesion, and the G. I. series was negative. We are told of no relation of the pain to food; only once of gaseous eructation and only once that he vomited.

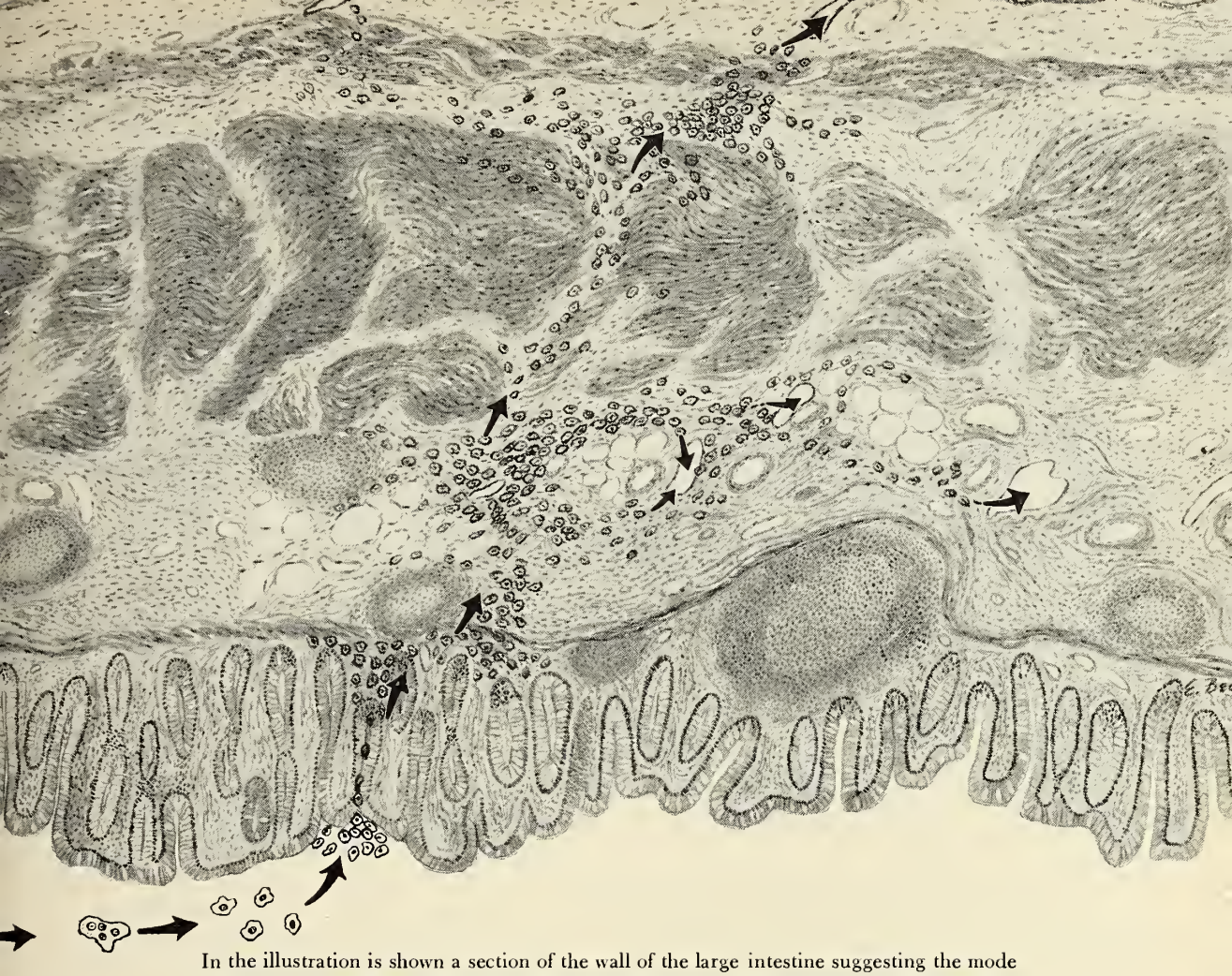
A peptic ulcer or diverticulum of the lower end of the esophogus should be considered; but we have no evidence for these conditions. Esophageal hiatus hernia has been known to cause symptoms that were sometimes hard to diagnose. The outstanding symptom here is usually dysphagia, but this occurred in only half of the cases reported. Pain is a prominent symptom and its character and location are variable. Precordial pain radiating to the shoulder and arm are reported and patients with hiatus hernia have been treated for coronary thrombosis. However, if our patient had this condition, why did he die? The only reason I can think of for a patient to die suddenly of a lesion of the lower esophagus would be from internal hemorrhage.

After considering this case, it seems that the patient probably had either a myocardial disease or a pericarditis with effusion or both. His age certainly does not exclude myocardial disease. Baker and Schillhammer report in the Armed Forces Medical Journal two cases of myocardial infarction aged 22 and 20, and review a number of other cases under 40. Strange cases of coronary involvement are sometimes seen. I well remember a 22 year old Mexican boy some years ago who, while working for the city of Glendale, was seized by a severe substernal pain with prostration and died within a few hours. Since there was a question about the Industrial angle, we had Dr. Mills do an autopsy and we found a surprising condition. An aortic vegetation, only about half centimeter in diameter, was acting as a flap obstructing the orifice of one of the coronary arteries. Fortunately, I had taken a sample of blood just before this boy's death, and it was later reported 4+. Pericarditis may give a similar pain but is more long lasting and less apt to radiate down the left arm.

Pericarditis may be a complication of rheumatic fever or tuberculosis, neither of which is suspected here, or it may be of a non-specific character, usually following an acute upper respiratory infection. Porter et al in the JAMA Oct. 28, 1950 call this latter a non-specific benign pericarditis and report cases wherein the differentiation from myocardial infarction was made; also Leslie Smith recently gave a paper on this subject. They report that pain was aggravated by respiration, cough, and chest movements, and although at times severe did not often radiate down the left arm. They found pericardial friction rub present from onset of illness and there were early fever, leukocytosis and elevated sedimentation rates. They pointed out that in myocardial infarction these signs appear later.

Of importance in the diagnosis of our case is the fact that non-specific pericarditis seems to be a benign and self-limited disease whereas our patient died. Now we might say that there was a rather rapid increase in pericardial fluid until cardiac tamponade occurred causing death—but we have no proof of this—hence I feel we must again fall back on the most obvious diagnosis, that of myocardial infarction.

This is a problem that repeatedly confronts us in medical practice. The patient presents himself with substernal pain. He says he has heart trouble — that's what brings him to the doctor. If his symptoms are characteristic and positive electrocardiographic evidence is secured, a diag-



In the illustration is shown a section of the wall of the large intestine suggesting the mode of invasion of *Endamoeba histolytica* into the various levels; the mesenteric venules lead to the liver and escape of some of the parasites may cause an amebic abscess of the liver.

Diodoquin® in Amebiasis

"Diodoquin is very effective in curing the intestinal infection...."*

In a recent survey of seven commonly-used amebacides, Weingarten* concluded that Diodoquin (diiodohydroxyquinoline, U.S.P.) gave an excellent percentage of cures with maximal safety for the patient.

The active protozoacidal agent in Diodoquin is iodine, present in the high percentage of 63.9.

As a result of this high iodine content, Diodoquin is extremely potent and, with few exceptions, a twenty-day divided dosage will destroy the offending organisms. This efficient therapeutic effect is due to the high levels of insoluble halogen acting in the lumen of the bowel. It is a well tolerated and relatively nontoxic amebacide.

Diodoquin's simplified dosage plan, three 10-grain tablets daily for twenty days, is a decided improvement for treating both the asymptomatic and symptomatic forms of amebiasis. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Diodoquin is supplied as tablets of 10 grains (650 mg.) in bottles of 60 and 500.

*Weingarten, M.: Proctology Symposium: Amebiasis: Medical Aspects, Mod. Med. *20*:121 (May 15) 1952.

SEARLE *Research in the Service of Medicine*

nosis can be made; but if laboratory work is not confirmatory the burden of diagnosis rests on the practitioner—as it did in this case. Should his life be disrupted by treating him as a case of coronary disease, or should he be reassured and released? In which case it may become embarrassing if the patient dies.

Diagnosis: Coronary occlusion.

DIFFERENTIAL DIAGNOSIS

Dr. Conger Williams: This case concerns a man of thirty-six with a history of recurrent attacks of severe pain in the chest radiating down the left arm. He ultimately died, following one of the attacks two years after the onset of symptoms. In spite of the age of the patient the diagnosis of coronary heart disease with angina pectoris and myocardial infarction seems the best possibility. The pain was located in the left chest during the first few episodes but was later described as recurring in the substernal region. The pain of coronary insufficiency or myocardial infarction is usually located in the sternal region but may occur to the right or the left of it.

The negative findings on physical examination and electrocardiogram the day following the first attack do not include either myocardial infarction or coronary insufficiency. On admission to the hospital two weeks later, after recurrent episodes of pain in the chest and arm, the electrocardiogram was definitely abnormal, with an inverted T wave in Lead 1 and a Q wave in Lead 4. Six days later the T wave in Lead 1 was more deeply inverted. These electrocardiographic changes, especially the presence of a Q wave in Lead 4, are practically diagnostic of myocardial infarction, provided that the Q wave was of significant size. It would be helpful to see the electrocardiograms in this case, but they are not available. Apparent changes in the QRS complexes toward a more normal pattern during the first admission do not necessarily point against the diagnosis since such changes may occur with minor differences in placing of the chest electrode at the apex. Furthermore, the T wave in the apical lead may be upright in an anterior infarction, with significant changes occurring either to the right or to the left of the apex.

I believe that at the time of the first hospital admission the patient had had several episodes of coronary insufficiency and probably at least one myocardial infarction. In the interval between admission, pain was present only on effort, further evidence in support of a diagnosis of coronary heart disease. The patient died eight hours after the onset of the final episode with symptoms suggesting myocardial infarction. His sudden death can therefore be explained by the onset of ventricular fibrillation.

Another possibility that must be considered is rupture of one of the coronary arteries, with death resulting from acute pericardial tamponade. Death does not necessarily occur immediately, but may follow in several hours, depending on the size of the break. The blood-pressure change, with the low systolic pressure and a narrow pulse pressure, is consistent with such a diagnosis, but no mention was made of dyspnea or distended neck veins, although the latter finding might have been missed after admission. Myocardial rupture must also be considered, but is most unusual only eight hours after the onset of an infarction.

There are several other possibilities, but I believe that coronary heart disease with recurrent myocardial infarction and angina pectoris is the only diagnosis that fits all the findings. Dissecting aneurysm of the aorta can produce pain of this type, but repeated episodes over a period of two years are hardly in keeping with the nature of the lesion, and the absence of hypertension is against it. Syphilitic aortitis with narrowing of the mouths of the coronary arteries may produce coronary insufficiency at an early age, but it is hardly in keeping with a history of prolonged episodes of pain suggesting infarction. Furthermore, the blood Hinton test was negative. The nature of the pain does not suggest saccular aneurysm of the aorta, and negative x-ray films dispose of this suggestion.

Other possibilities that might be considered briefly are mediastinal emphysema, pneumothorax and pulmonary embolism, but there is no evidence to support any of these diagnosis. Thus, I am left with only the diagnosis of coronary heart disease. Because of the patient's age one should raise the question of a systemic disease that produced involvement of the coronary arteries as one of its manifestations. Occasionally such a condition accounts for involvement of the coronary arteries in young people. Syphilis has already been considered and rejected. Xanthomatosis is a possibility, but no mention was made of splenic or hepatic enlargement, the blood cholesterol level was not studied, and no skin

nodules were reported. Periarteritis nodosa and Buerger's disease are other conditions to be considered, but again there is no supporting evidence.

CLINICAL DIAGNOSIS

Coronary thrombosis.
Coronary heart disease.

DR. WILLIAMS' DIAGNOSIS

Coronary heart disease with myocardial infarction (? anterior).
Ruptured coronary artery with pericardial tamponade?
Angina pectoris.

ANATOMICAL DIAGNOSIS

Coronary thrombosis, recent, right.
Coronary thrombosis, old, left descending and circumflex branches.
Myocardial infarction, old.
Mycardial fibrosis.
Arteriosclerosis, marked, coronary and aortic.
Hydrothorax, slight, bilateral.
Pulmonary edema.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman: This patient did have severe coronary heart disease. Both main vessels were markedly atherosclerotic and calcified. There was an old thrombotic occulsion 3 cm. in length beginning a few millimeters beyond the origin of the left main coronary artery and another similar occulsion of the left circumflex branch near its origin. Most of the blood supplying the heart, therefore, must have been coming via the right coronary artery. This vessel was markedly narrowed in a few places but still patent except for one point about 4 cm. from its origin where there was a recent thrombus completely occluding the lumen. This was undoubtedly the cause of the last substernal attack that led to death. There was an old myocardial infarction involving the septum and anterior wall of the left ventricle, and scattered small foci of fibrosis in the rest of the heart, but no definite evidence of acute infarction. Eight hours is too short a period for one to be absolutely sure of changes in the myocardial fibres, and unless numerous sections were taken from various parts of the heart, a small area of acute infarction might be missed. The heart weighed only 325 gm. and was not hypertrophied. There was no hemopericardium.

Park Central Medical Building

Phoenix

Five Fifty West Thomas Road

See for yourself the many features offered the Medical profession in a building designed exclusively for professional occupancy.

Your inspection invited—For appointment telephone AMherst 6-8416

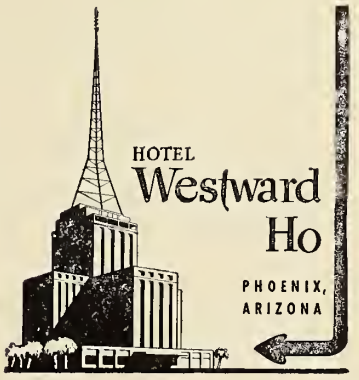
E. A. Hamilton, Designer and Manager

A Limited Amount of Space Available

Date of occupancy June 1st, 1953

Next Stop, Phoenix

Enjoy a delightful SUNSHINE WEEKEND — 3 full days — Friday through Sunday — in the new Patio Addition for the refreshing sum of $20 Single, $25 Double. This price includes an actual Cash Credit for dining and dancing in The CONCHO ROOM. — $4 Single, $6 Double. The three days and the Cash Credit all for the price listed above. Offer expires October 1st.



The PRESIDENT'S *Page*

SUBJECT: How To Improve Press Relations. (Careful reading of this entire article is urged, and suggestions from the membership respectfully requested.)

Those who heard Mac Cahal's address at the scientific session in Tucson and who read the headlines and first few paragraphs of review in the following morning paper justifiably felt incensed at the misinterpretation of the text, the wrong use of adjectives, and the implication that the speaker "assailed" Arizona physicians, when in fact he was speaking of the causes and cures of poor public relations on a country-wide scale. Those of us who have known Mac for a number of years know that he holds the medical profession in the highest regard and is constantly working for the welfare of medicine. We understand that the reporter's headline and part of the text were altered by a night editor. Except for the flaws in this unfortunate article, Arizona Medical Association received the best coverage by Tucson newspapers in memory.

Out of this misunderstanding definite good has come. In a conference we have been told that most newspapers are interested in reporting factually correct news, and that they cannot obtain accurate medical news without cooperation. We have been told that most doctors of medicine, fearing criticism from their colleagues, are apt to clam up with a "no comment" when contacted by a reporter and that as a result only the distorted views of one side may become published. The press recognizes our individual desires for anonymity but feels frustrated (and no doubt resentful) for lack of an official source from which reasonably correct information may be obtained. One can understand how a conscientious reporter who often covers "hot" stories with a medical slant and is repeatedly brushed off with a "no comment" is apt eventually to color his reporting in a light unfavorable to the medical profession. It is a human feeling we all possess.

It is not the purpose here to encourage all-out publicity seeking by the membership. It is the purpose to inform you that more vigorous attempts will be made this year to establish cordial relations with the press. To the Public Relations Board of the Association will be assigned the task of working out formulae, including the drawing up of a code of press relations for us to follow. In order that the individual members of the Association may be protected, a proposal may result whereby the names of members of official committees authorized to speak in the name of the Association or a County Medical Society will be furnished to the newspapers. As an example, suppose the newspaper wishes information about a patient in a hospital. The paper would call a member of the proper committee who would in turn contact the attending physicians and the hospital, and would then supply as accurate information as possible to the reporter promptly. If any quotations are used, the article would state, "Dr. Doe, speaking in the name of Blank County Medical Society, says" etc.

Remember when you give information to the reporter that you have a right to ask him to read back to you the exact words he is going to quote you as having said. If you are not prepared to give a spur of the moment comment, be courteous, tell him you are busy and will call back in five minutes, and then formulate a statement which is concise and cannot be misconstrued.

The method of working out the details has been turned over to the Chairman of the Public Relations Board. Much time and thought will be required by his excellent committee, and we should not look for an immedate solution. Assist the committee in any way you can.

Edward M. Hayden, President
Arizona Medical Association

Editorial

ARIZONA MEDICINE
Journal of
ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 JUNE, 1953 NO. 6

EDITORIAL BOARD
R. Lee Foster, M.D. .....Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. .....Assistant Editor, Tucson

ASSOCIATE EDITORS
William H. Cleveland, M.D. .....Phoenix
Howard D. Cogswell, M.D. .....Tucson
Louis G. Jekel, M.D. .....Phoenix
Frank J. Milloy, M.D. .....Phoenix
William H. Oatway, Jr., M.D. .....Tucson
Leslie B. Smith, M.D. .....Phoenix
Arie C. Van Ravenswaay, M.D. .....Tucson
W. Warner Watkins, M.D. .....Phoenix

COMMITTEE ON PUBLISHING
R. Lee Foster, M.D., Chairman .....Phoenix
Carroll C. Creighton, M.D. .....Flagstaff
Donald E. Nelson, M.D. .....Safford

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS
J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

FIREWORKS INJURIES

Not many years ago most Doctors approached this time of year with some dread and misgivings, knowing they would be called upon to treat injuries from fireworks used in Fourth of July celebrations.

They knew also that a sad proportion of these injuries would prove fatal in spite of all they could do. Slowly but surely the public has become conscious of these needless casualties and through the years has built up a program of promotion of a "Safe and Sane Fourth".

This program has employed many methods. The public has been educated in the inherent dangers of fireworks and especially when promiscuously used. The use of less dangerous types has been softly promoted.

Laws have been passed prohibiting fireworks in various states, either by prohibiting their use outright, or their possession, or their import or export in the state or discouraging their possession and use by other means. Quietly and unobtrusively is most cases, where their use has not been frankly outlawed, it has been permitted and placed under control to permit larger and more spectacular displays under controlled safety precautions and by experienced persons. This in turn has further discouraged indiscriminate home use of the less spectacular but more dangerous kind.

All this has been done so gradually, so quickly and softly that most of us have hardly realized that it was going on. As a tribute to its effectiveness, it is apropos to quote some statistics recently released by the American Medical Association.

In the United States in 1903 there were 466 fatalities and 3,983 non-fatal injuries from fireworks. In the years since there has been in general a gradual decrease in these casualties with the figures in 1916 being 30 deaths and 820 non-fatal injuries. In 1946, the last year for which records are available there were only 6 deaths and 903 non-fatal injuries. And remember that this is in spite of a very rapidly increasing population! This of course would make percentage figures even more impressive.

Yes, Doctor, here's one other reason for you to be thankful you weren't born fifty years sooner. Not only would you not have had the "wonder drugs" but you would have had more fireworks injuries to treat without them.

It behooves us to continue this great work and in every way possible promote a "safe and sane Fourth".

CHANDLER, ARIZONA SITE FOR 1954 ANNUAL MEETING

As directed by the House of Delegates in annual meeting held in Tucson, Arizona, April 28, 1953, Council at a meeting held May 24, 1953, selected Chandler, Arizona, as the site for the Sixty-Third Annual Meeting of this Association the dates: April 25 (Sunday), through April 28 (Wednesday), 1954. Headquarters will be at the San Marcos Hotel.

Tentative plans call for a meeting of Council, Sunday afternoon (April 25), followed by the Annual Corporation and Board of Directors meetings of Blue Shield. A handicap golf tournament (stag) will be scheduled for Sunday also.

The House of Delegates will meet in the morning; first session Monday, April 26, and second session Wednesday, April 28.

The President's Dinner-Dance will be held Wednesday evening, April 28. Technical exhibits will be provided for.

STATE HOSPITAL CHANGES VISITING HOURS

Dr. M. W. Conway, Director of the Arizona State Hospital, has announced the following changes in visiting hours to become effective May 1, 1953:

Saturdays, Sundays & Holidays: 10:00 to 11:00 a.m., 1:00 to 4:000 p.m.

Tuesdays, Wednesdays & Thursdays: 2:00 to 4:00 p.m.

No visiting hours Mondays and Fridays.

The new regulations will in no way interfere with the hospital policy of allowing relatives to visit critically ill patients at any time. No visitors are permitted for new patients for 2 weeks after their admission.

Dr. Conway emphasizes the fact that frequent contact with relatives and friends is important to the well-being of the patient. However, the present daily visiting hours frequently hamper the hospital's treatment program for patients. Hospital employees work 44 hours a week, of which at the present time 22 hours are allotted for visitors, which means that patients are frequently not available for treatment during one-half of a doctor's time. The additional time allowed by the reduction in visiting hours will expedite the over-all treatment program for patients and assist in their earlier recovery.

ROCKY MOUNTAIN CANCER CONFERENCE

Come to COLORFUL COLORADO for the Seventh Annual Rocky Mountain Cancer Conference held at Denver July 8 and 9.

Headquarters Shirly-Savoy Hotel. No registration fee. Banquet and entertainment, Round Table Discussions.

Guest Speakers are as follows: Wm. M. Allen, M.D. Gynecology, St. Louis, Mo.; Ralph M. Caulk, M.D., Radiology, Washington, D. C.; John W. Cline, M.D., Surgery, San Francisco, California; Henry D. Diamond, M.D., Internal Medicine, N.Y.C.; Rubin H. Flocks, M.D. Urology, Iowa City, Iowa; Cushman D. Haagensen, M.D., Surgery, N.Y.C.; Francis W. Lynch, M.D., Dermatology, Saint Paul, Minn.; and John R. McDonald, M.D., Pathology, Rochester, Minn.

For Information Write To:

ROCKY MOUNTAIN CANCER CONFERENCE
835 Republic Bldg.
Denver 2, Colorado

University of Pittsburgh School of Medicine
Department of Surgery,
Section of Anesthesiology
Announces A

POST GRADUATE SYMPOSIUM

On the

BASIC SCIENCES RELATED TO ANESTHESIOLOGY

In Co-operation with the
Departments of Anesthesiology
of the
St. Francis, Allegheny General, Mercy
Medical Center Hospitals
This course will be held June 8-12, 1953
9 A.M. to 6 P.M.
Registration Fe — $25.00
The Course Will Be Limited to
50 Participants

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona



You'd see a good-sized gallery

. . . with all the patients who represent the 44 uses for short-acting

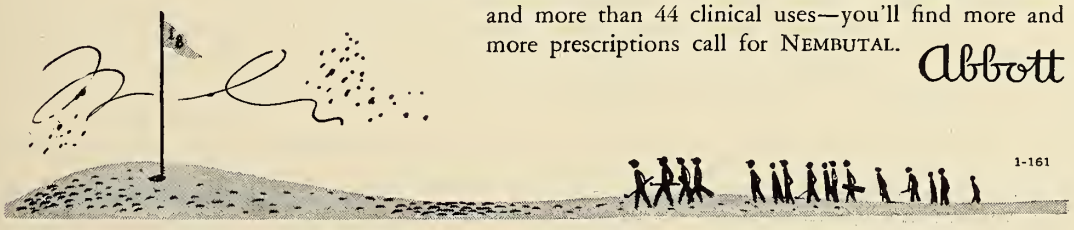
Nembutal®

WHAT YARDSTICK DO YOU USE TO DETERMINE the drug you write on your prescription? If the drug is a barbiturate—such as short-acting NEMBUTAL (Pentobarbital, Abbott)—you can measure it, compare it and sum it up in these four short sentences:

1. *Short-acting* NEMBUTAL *can produce any desired degree of cerebral depression—from mild sedation to deep hypnosis.*
2. *The dosage you need is small—only about half that of many other barbiturates.*
3. *There's less drug to be inactivated, shorter duration of effect, wide margin of safety and usually no morning-after hangover.*
4. *In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.*

Perhaps that's why—after 23 years, 598 published reports and more than 44 clinical uses—you'll find more and more prescriptions call for NEMBUTAL.

Abbott



1-161

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M. D.

At least three Arizonans were seen at the San Francisco sessions of the AMER. ASS'N. FOR THORACIC SURGERY. In addition, Dr. W. Dermont Melick of Phoenix was elected to associate membership; Dr. John Alexander of Michigan came up from his Tucson holiday quarters, and it is wonderfully good to see him at meetings again; Dr. W. H. Oatway, once of Tucson and now of Altadena (near Los Angeles), attended as a new active member. . . The meetings were good and well run. . . The most dramatic point was a quiet few words, spoken during a movie which showed a "mechanical lung" (extracorporeal circulation). The surgeon said, "Oh yes. At this point I should mention that lungs are collapsed and not moving. Breathing is no longer necessary" (!). . . The other most amazing phenomenon was the bathroom of one of the officers, at the Fairmont Hotel. It was located just above the Venetian Room. The ceiling, walls and floors were made of mirrors, and after 9 P. M. Hildegard and her orchestra could be heard coming up through the drains. . . Most meetings are too smooth and polite, but frankness still exists. One paper was expected to be controversial, but the speaker warily waltzed around the subject. The first discusser, a longtime member, said, "As I rose to comment on this paper, a friend next to me asked where I was going. I said 'To discuss the paper'. Said my friend, 'What the hell is there to discuss?' I agree with him."

The plasma and transfusion problem, as it concerns HOMOLOGOUS SERUM JAUNDICE in U. S. troops, is far from settled and satisfactory. . . The Armed Forces and Surgeon General report that 23 PER CENT of the severly wounded (who receive 5 to 10 units of plasma) contract hepatitis in 60 to 180 days. It is some consolation that the mortality is only 1 per 1,000. . . No good method of sterilization is available. Serum albumin is free of the virus, but is in short supply.

Two Tucson medical authors have done right well in the Annals of Internal Medicine. . . HARRY THOMPSON AND HAROLD ROWE published on 'Cortisone and Gold Therapy in Chronic Rheumatoid Arthritis'. . . They urge the concurrent use of the hormone and metal for best results. What they say makes sense, since gold is slowly effective but toxic, and cortisone is quickly effective but not permanent. . . They find that remissions can be produced quickly and completely, and that cortisone can then be discontinued with less chance of relapse.

A dermatologist, or an eye man, or even an internist might get a minor shock from a postcard announcement sent out by the Murray Baumgartner Surgical Instrument Co., Inc., of Baltimore. . . "The Berman Polyethylene tube for replacement of resected portions of the esophagus is now available for distribution. They are available in sets of six." . . . Anybody for tennis?

The 'F' antibiotics are dominant this month. Their trial has been scanty but they sound interesting. . . FURADANTIN (Eaton Labr., Inc.) is the name for nitrofurantoin, a urinary antiseptic made from nitrofuran. It can be given by mouth, has a 'broad spectrum', has scanty toxicity (some nausea), and it is said to be effective (at Wake Forest and the N. Y. College of Medicine) on many cases refractory to other drugs. . . FUMADIL (Abbott Labr.) is the other antibiotic, noted for its narrow field of action. Early reports indicate that it has no effect on bacteria, fungi, or viruses, but is very rough on the ameba E. histolytica. Kills not only the disease-bearing trophozoites but the disease-spreading cysts. They say.

BOOK-TITLE-OF-THE-MONTH—Dr. Errett Albritton of George Washington University wins the award for "Standard Values in Blood, being the first fascicle of a Handbook of Biologic Data". . . FASCICLE. It may become a fashionable word?

Our editor may consider this flattery instead of a compliment, but the risk must be taken. . . Whoever though of using a section from ARIZONA MEDICINE (containing a description and schedule for the state A.M.A. meeting) as a PROGRAM for the meeting was thinking smartly. . . It looked well, it had our journal's cover on the front, and there just may have been a financial angle involved. . . Good 'deal'.

Wagner of Washington reported at a recent A.P.H.A. meeting that Terramycin is the most effective treatment for NONSPECIFIC URETHRITIS AND PROSTATITIS. . . He stresses two points, however. The etiology of the disease is not known. Treatment is no substitute for diagnosis.

We abstracted an article last year on A TUBELESS TEST FOR ACHLORHYDRIA. It apparently looks good commercially, since Squibb now has it for sale as 'Diagnex' (Squibb quinine carbacrylic resin) . . . To summarize the method, as now used—the patient takes a dose of the resin, plus a capsule of caffeine sodium benzoate (to stimulate the gastric secretion). The patient collects a con-

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix June, 1953

Question QUIZ
Do you know the answers?

Q. Does the HBA Surgical Plan pay for wound repair, X-rays and treatment of fractures in the Doctor's office?

A. Yes—when as a result of an accident and if within 24 hours of the accident.

Q. Can doctors help HBA speed up payment for their fees?

A. Yes—by promptly billing the Association and by giving necessary data using standard medical nomenclature.

Q. How many Association members are there today?

A. More than 35,000.

Q. How much did the Association pay out in 1952 on hospital and surgical bills?

A. The Association paid out more than $311,000 in hospital and surgical bills for its members.

Q. What standard does the HBA use in paying surgical fees?

A. It was taken from the Arizona Industrial Commission's schedule of surgical benefits.

Q. Does the Association cooperate with doctors and hospitals?

A. Yes. The Association cooperates in every way possible. And it actively supports the standards of the medical profession.

Q. Are surgical fees paid to osteopaths by the Association?

A. No.

Q. May HBA members choose their own hospitals and doctors?

A. Yes. Member benefits are paid to any licensed hospital or physician (M.D.) anywhere in the world.

Annual Meeting Reflects HBA'S Liberal Policy Of Settling All Claims

The Hospital Benefit Association's annual meeting of members, held May 13 at the Home Office, First Street at Willetta, Phoenix, reflected the Association's liberal payment policy, its sound condition and its rapid growth during the past year.

Physicians' Use of Standard Nomenclature Avoids Paying Delay

The schedule of Surgical Benefits of the Hospital Benefit Association was taken from the schedule of the Arizona Industrial Commission.

If the physician uses the same wording as this schedule in filling out the Association's bill form, any question of eligibility is eliminated and payments can be made without delay.

However, if an operation is performed that is not listed in the schedule, the Association requests physicians to use standard medical nomenclature when their statements are submitted. This, too, will cut down on delay caused by lack of information.



"We were in the same hospital together—too bad you turned out to be a girl."

George E. Richardson, Director, read a report from the State Insurance Department which is prescribed by law to have one of its examiners audit and check the Association's records each year. The examiner's report showed that the Association is operated in an efficient and economical manner, and that it is quite liberal in claim settlement practices.

HBA Pays $311,201

Mr. Richardson, reporting on the past year's activities, disclosed that during 1952, the Association paid $311,201.58 in hospital and surgical bills for its members.

He also pointed out that membership in the Association increased 29.24% during the last year, and that the Association's assets as of April, 1953, totaled $235,380.46. This represents a gain of $45,404 since the end of last year.

This was the Association's first meeting in its own building. And Mr. Richardson stated that the move into the Association's own building a year ago has resulted in increased efficiency and economy. He also added that the gratifying increase in membership has made it necessary to remodel the Home Office in order to get more office space.

X-Rays In Doctor's Office

The HBA Surgical Plan provides for payment of X-ray examination for fractures and dislocations in the doctor's office, if examination is made within 24 hours of the accident.

trol urine, and a single urine specimin 2 hours after the dose. These go to the physician, laboratory, or hospital for analysis. . . Squibb's will be glad to receive requests for information, but no specimens, please.

The Fresno (Calif.) CHEST X-RAY SURVEY must have made lots of people salivate because of its completeness. Public health officials, or any good citizen, would delight to have 85% of the population surveyed. That figure is almost as good as having a law.

A physician's knowledge of ENZYME SYSTEMS is usually not very great. Most of us would know nothing of what happens when five chemicals are combined, (adenosine triphosphate, oxygen, magnesium, luciferm, and luciferase), and that is what happens—nothing. . . When another chemical, inorganic pyrophosphate, is set free to join the group by nerve stimulation, what happens? The flash of light which is made by A FIREFLY! . . . Three Johns Hopkins workers have described the procedure, and also add that the fire is put out by rapid destruction of the pyrophosphate.

The advent of a new and relatively non-toxic DRUG FOR EPILEPSY has been noted by Carey of the Lederle Laboratories. . . They call it 'Hibicon', and it contains a new chemical nucleus not previously used for this purpose. . . It is said to be best for grande mal and psychomotor types, and has worked where others have failed. . . The chief advantage is an apparent lack of bone marrow depression.

The 'Half-Century of Progress' issue of the Arizona State Health Dep't. was a goodie. One can read it and remember some of the events, or (if you're new here) read it and wonder at the huge changes in a remote, recent Border State. . . The pamphlet will be fine source-material for those who come later but there are plenty still here who know the stories between the lines. . . It seems a far cry from a day when M.D.'s were afraid to stay away from a medical meeting because they wouldn't be there to defend themselves in one of the outspoken ruckuses, and when they often carried pistols, and when the poorest health-seekers lived in tent-colonies outside of the resort towns. . . 'Tain't long, tho.

Rowe, McKelvey, and Keith write some iconoclastic notes in the Canadian Medical Ass'n Journal. They tried out corticotropin, cortisone, or aspirin on random selected patients with RHEUMATIC FEVER. . . Certain beneficial effects were encountered in all three groups. Fever and arthritis were usually controlled by all three drugs. Relapses in fever, sed. rate and arthritis were most common in the hormone group on cessation of therapy. . . Conclusions—The salicylates are the more practical agents in rheumatic fever!

Krantz of Maryland is said (by TIME MAG.) to have a fluorinated ether (trifluorethyl vinyl ether) which promises well as AN ANAESTHETIC. It is fact-acting (30 sec.), has an agreeable odor, and is poorly combustible. . . Who will offer odds that it will not produce the usual complications of almost any new agent? The odds are high.

TIME mentions another variation on a familiar theme. We have wondered, in previous paragraphs, why the advantages of a TOXIC (EMETIC) AGENT combined with the BARBITURATES wouldn't outweigh the disadvantages. . . Now Koppanyi and Tazekas of Washington, D. C., have a 'safety factor', pentylene tetrazol. It counteracts the sedation, when the barbiturate is used in excess, and is an emetic. . . Viva!

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 10th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 15th OF THE MONTH.

Material arriving after that date will be published the following month.

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE

G. F. STEEL DESKS

ALUMINUM CHAIRS

CARDINEER ROTARY & VICTOR VISIBLE FILES

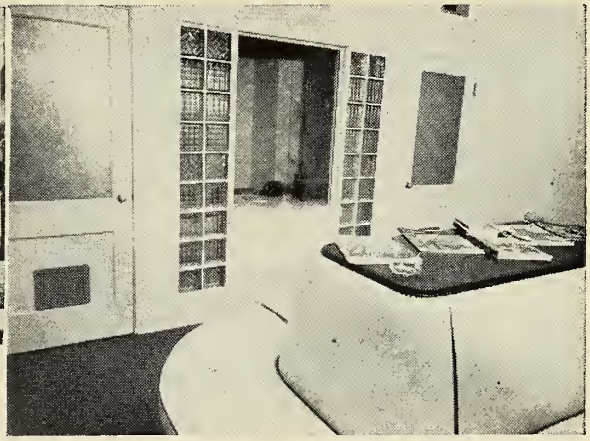
Heinze Bowen & Harrington, Inc.

228 West Washington St.

Phone ALpine 4-4179

PHOENIX ARIZONA





Suite for M.D. or Surgical Specialist — Modern, 5 rooms, refrigerated cooling.
Available Now. $200 per month on lease basis.

See

HOWARD J. OHL, M.D., A.A.G.P.

25 W. McDowell Rd. — Phoenix, Arizona

TRUSSES

And Other

SURGICAL SUPPORTS

Private Fitting Rooms — Expert Fitters

Trusses
Elastic Stockings
Back Supports
Rib Fracture Belts
Arch Supports
Abdominal Supports
Shoulder Braces
Knee & Ankle Braces
Zenith Hearing Aids
Hearing Aid Batteries

GROVE'S

SURGICAL SUPPORTS STORE

3123 N. Central — Phone CR 4-5562

Lady and Man Fitter
Fitted Exactly As You Order
Across from Park Central Development
On Central Avenue

Free Parking — Open Wednesday Nights

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.

333 N. 7th Ave. — Phoenix, Arizona

ALpine 3-5175

Arizona Pharmaceutical Page

PHARMACISTS TODAY

AS WE VIEW THE PROGRESS OF EVERY BRANCH OF THE HEALTH SERVICE GROUP, WE FIND A CONTINUOUS UPGRADING OF EACH OF THE PROFESSIONS DURING THE PAST TWO OR THREE DECADES. THE ADVANCEMENT MADE BY EACH PROFESSION HAS PLACED A DEMAND ON OTHER ASSOCIATED PROFESSIONS TO KEEP IN STEP. WE, IN PHARMACY HAVE BEEN COGNIZANT OF THE RESPONSIBILITIES IMPOSED IN US.

WHEN OUR NEW PHARMACY LAW BECAME EFFECTIVE IN 1935, THE ONLY REQUIREMENT FOR THE PRACTICE OF OUR PROFESSION, IN ARIZONA, WAS FOUR YEARS OF PRACTICAL EXPERIENCE. THIS CONDITION PREVAILED FOR A PERIOD OF FIVE YEARS THEREAFTER OR UNTIL 1940. DURING THIS PERIOD ALL WHO HAD BEEN REGISTERED AS APPRENTICES, WERE GRANTED LICENSES TO PRACTICE THE PROFESSION UPON SUCCESSFULLY COMPLETING THE BOARD EXAMINATION. AFTER THAT TIME ONLY THOSE WHO PURSUED A COURSE OF INSTRUCTION LEADING TO A BACHELOR OF SCIENCE DEGREE IN PHARMACY WERE ELIGIBLE FOR LICENSURE.

THE BEGINNINGS OF PHARMACY, THEN, IN ARIZONA, WITH AN ADEQUATE BACKGROUND FOR ITS PRACTICE, APPARENTLY BEGAN IN 1940. THIS DOES NOT PRESENT A TRUE PICTURE OF OUR SITUATION THOUGH; DUE TO THE START OF WORLD WAR II, WITH THE SUBSEQUENT DEPLETION OF OUR COLLEGES BY THE ARMED FORCES. AN ACUTE SHORTAGE OF PHARMACISTS BECAME MORE AND MORE EVIDENT. FINALLY, IN 1947, THE UNIVERSITY OF ARIZONA BOARD OF REGENTS ESTABLISHED A SCHOOL OF PHARMACY. THIS SCHOOL GRADUATED ITS FIRST CLASS IN MAY, 1950. PHARMACY, IN ARIZONA, WAS FINALLY TO RECEIVE PRACTITIONERS WHO WERE ADEQUATELY TRAINED IN THE SCIENCE OF ITS PROFESSION.

THE CLASSES OF 1950, 1951 AND 1952 HAVE PROVIDED US WITH 107 GRADUATES WHO HAVE BEEN ABSORBED INTO OUR 300 PHARMACIES—GRADUATES WHO HAVE RECEIVED THE BEST OF TRAINING IN THEIR PROFESSION AND WHO ARE PREPARED TO FULFILL THE HEALTH NEEDS OF THEIR COMMUNITIES. THIS YEAR WE SHALL HAVE AN ADDITIONAL 25 GRADUATES FROM OUR COLLEGE OF PHARMACY. GRADUATION, HOWEVER, IS NOT THE ONLY REQUIREMENT OF PHARMACISTS IN THIS STATE.

IN 1948 THE ARIZONA BOARD OF PHARMACY ADOPTED A COMPREHENSIVE INTERN TRAINING PROGRAM FOR GRADUATES, PROVIDING FOR NOT LESS THAN 52 WEEKS OF INTERN TRAINING IN A PHARMACY APPROVED BY THE BOARD. THIS TRAINING IS RIGIDLY SUPERVISED AND ITS SCOPE IS BROAD. TO BE ELIGIBLE FOR THE BOARD EXAMINATIONS, AN INTERN MUST HAVE NOT LESS THAN 26 WEEKS TRAINING SUBSEQUENT TO GRADUATION FROM A COLLEGE OF PHARMACY AND, IN NO INSTANCE, MAY HE ACQUIRE ANY TRAINING PRIOR TO THE COMPLETION OF TWO YEARS IN THE COLLEGE.

TWO YEARS AGO OUR COLLEGE OF PHARMACY ADDED TO ITS PROGRAM ONE YEAR OF PRE-PROFESSIONAL TRAINING AS A REQUISITE FOR ENTRANCE TO THE COLLEGE. WE SHALL HAVE OUR FIRST CLASS UNDER THIS EXPANDED PROGRAM GRADUATING IN THE SPRING OF 1956. THIS PRE-PROFESSIONAL YEAR REQUIRES THE COMPLETION OF NOT LESS THAN 32 UNITS OF COLLEGE WORK IN ENGLISH, CHEMISTRY, MATHEMATICS, ZOOLOGY AND BOTANY WITH AN ACCUMULATED GRADE AVERAGE OF NOT LESS THAN 3.0000 OR BETTER.

PHARMACISTS TODAY ARE THEN REQUIRED TO HAVE ONE PRE-PROFESSIONAL YEAR, FOUR YEARS IN THE PROFESSIONAL SCHOOL AND ONE YEAR OF INTERN TRAINING BEFORE THEY BECOME ELIGIBLE TO DO THE WORK YOU AND THE MEMBERS OF OTHER HEALTH PROFESSIONS REQUIRE OF THEM. THEY ARE BECOMING INCREASINGLY ABLE TO HANDLE THE PROBLEMS DEALING WITH THE DISPENSING OF DRUGS AND MEDICINES.

APPLY FOR

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

DWIGHT McCLURE
Telephone ALpine 3-1185

GEORGE B. LITTLEFIELD

W. J. WINGAR
407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative

617 N. Stone Ave., Tucson Telephone 2-2803

WHERE THERE'S BLOOD, THERE'S LIFE!

You can be sure . . . where's there's life, there's blood! While you've got your gallon and a half of blood circulating through your body, it doesn't always seem too important to share just a small part of it to help save someone else's life. As a matter of fact, your own life could well depend on having a couple pints of blood tomorrow, next week or perhaps next year. If you do need a pint of life, you'll want it quick and ready at hand . . . without fail or waiting.

Most people want it that way, too . . . strongly enough to donate their blood on a regular schedule, several times a year. These are the people who are protecting your life. They expect the same protection from you . . . from the blood that YOU donate. Your blood also makes possible the production of derivatives such as plasma, serum albumin and gamma globulin. IT ALL MEANS LIFE, NOT ONLY TO YOU AND YOUR FAMILY, BUT TO THOUSANDS OF PEOPLE ALL OVER THE COUNTRY.

The future of American freedom and well-being depends on everyone sharing in the vital job of providing adequate supplies of blood. We must save lives of our wounded fighting men, provide for everyday civilian needs, and build a reserve for civil defense use in case of attack. Over 5,000,000 pints are needed this year alone. THIS IS A JOB FOR REAL RED-BLOODED AMERICANS.

OFFICE FOR RENT

Available September 1st

1200 sq. ft. floor space, asphalt tile throughout, York Refrigeration, central heating, refrigerated ice water, intercommunicating system, private parking lot, lawn service. $250.00 per month.

Inquire 301 W. McDowell Rd.

Phoenix, Arizona

BLUE CROSS & BLUE SHIELD ANNUAL MEETINGS

Charles McCarty, Tueson attorney, was elected president of the board of directors of Associated Hospital Service of Arizona, this state's Blue Cross Plan, at its annual meeting. McCarty suceeeds Preston T. Brown, M.D., Phoenix, who has served as president of the board the past two years. Other new officers are: Harry Rosenzweig, Phoenix businessman, who replaces McCarty as vice-president; K. M. Hall, Mesa banker, who becomes treasurer in plaee of Glenn C. Taylor, and Guy Hanner, Superintendent, Good Samaritan Hospital, Phoenix, who replaees Lloyd Swasey, M.D., Phoenix, seeretary.

Dr. Brown, Taylor, W. J. Wasson and Jesse Hamer, M.D., leave the board of directors after serving on it sinee the inception of the plan in late 1944. Also retiring from the board after 6 years of serviee is A. S. Gibbons, Prescott.

Re-cleeted to the board were Frank Gurley, Mesa, and Harry Southworth, M.D., Preseott. New members added to the board are: M. O. Best, Phoenix, Nicholas Dragon, Phoenix, H. C. Lawrenee, M.D., Phoenix, Hayes Caldwell, M.D., Phoenix, and M. G. Wolfers, Tucson, who will fill the unexpired term of William Weeks, formerly of Tueson. Hall was also elected to the board.

Remaining on the Blue Cross board are: E. L. Burrill, Prescott, Sister Mary Eueharia, Phoenix, C. H. Gans, M.D., Morenci, Sister Agnes Mary, Tueson, Newell Stewart, Phoenix, James Bennett, Tucson, Fred Porter, Jr., Phoenix, H. D. Cogswell, M.D., Tueson, Lloyd Swasey, M.D., Phoenix.

BLUE SHIELD ELECTION OF OFFICERS

All offieers of Arizona Blue Shield were reeleeted at the annual Blue Shield Corporation meeting, held April 26th in Tucson at the Pioneer Hotel in eonjunetion with the annual Arizona Medieal Association eonvention.

Dr. David C. James, Phoenix, was elected for a second term as president, with Dr. Royal Rudolph, Tucson, vice-president, Earle Barrows, Phoenix banker, treasurer, and Dr. Zeph Campbell, Phoenix, seeretary. Robert MeFarland, Phoenix board member, is the fifth member of the Blue Shield exeeutive committee.

The following were re-elected to the board of direetors: A. W. Liddell, John Babbitt, John Durkin, Dr. Robert Hastings, Dr. Donald Polson, Dr. Virgil Toland, Dr. Florence Yount. Newly added to the board were: Dr. Sebastian R. Caniglia, Dr. G. Robert Barfoot, and Dr. Frederiek W. Knight. These three doctors replaced Dr. Robert Cummings, Dr. O. E. Utzinger and Dr. A. I. Podolsky, whose terms expired.

Dr. John J. MeLoone was eleeted to serve a three year term on the professional committee, replaeing Dr. Joseph M. Greer, whose term of offiee was completed with this meeting. Other members of the professional committee are: Dr. Kenneth B. Brilhart, Dr. Clarence B. Warrenburg, Dr. Robert E. Hastings, Dr. Wallace A. Reed, Dr. Paul L. Singer, Dr. Karl S. Harris.

ATTRACTIVE OFFICE SUITE FOR RENT
Suitable for Doctors and Accountants Offices
Available In June
J. CITRON, D.S.C.
311 W. McDowell Rd. – Phoenix, Arizona

WANTED–Young Assistant
For the General Practice of Medicine
and Surgery
LOUIS P. LUTFY, M.D.
301 W. McDowell Rd.
Phoenix, Arizona
AL 3-4200

Don't Forget
SOUTHWESTERN MEDICAL SOCIETY MEETING
El Conquistador Hotel — Tucson, Arizona
October 29, 30, 1953 • Six Outside Speakers • Dinner Dance
Golf Tournament • Football Game

THE AMERICAN SOCIETY OF X-RAY TECHNICIANS

FIRST INTERNATIONAL CONVENTION OF X-RAY TECHNICIANS

Royal York Hotel, Toronto, Canada
June 28 thru July 2, 1953

Sponsored jointly by:
The Canadian Society of Radiological Technicians and
The American Society of X-Ray Technicians

Refresher Courses are offered for two hours each morning. Eight courses will be presented, four by Canadian and four by American instructors. These courses are offered for beginners as well as advanced technicians. Contact Beatrice Hurley, R.T., Registrar, St. Catherine Hospital, East Chicago, Ind., for additional information and advanced enrollment.

The afternoon sessions will be devoted to joint sessions of the CSRT and ASXT at which time technical papers and assays will be presented by technicians of both societies and by distinguished radiologists on invitation.

Two Memorial Lecturers:

1. Canadan—*Welch Memorial Lecture* by E. A. Petrie, M.D., Director, Department of Radiology, St. Joseph's Hospital, St. John, New Brunswick, Canada.

2. American—*Jerman Memorial Lecture* by Russell H. Morgan, M.D., Professor of Radiology, The Johns Hopkins University, Baltimore, Maryland.

One need not be a member of either of these sponsoring organizations to enjoy the activities of the FIRST INTERNATIONAL. Guest badges are available which will allow anyone to join convention activities and array of social functions.

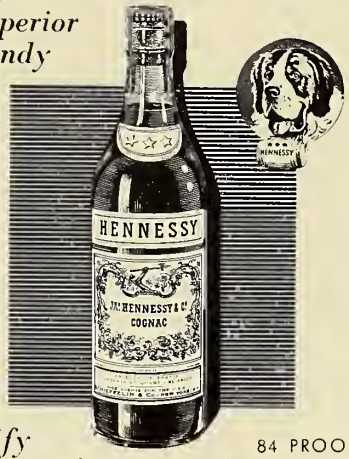
CALIFORNIA

A new illustrated booklet is available, describing the hospitals of the California Department of Mental Hygiene and listing the professional opportunities there. Physicians are invited to write for this publication.

CALIFORNIA STATE PERSONNEL BOARD

1015 L Street, Sacramento 14, California

In very special cases
A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N.Y. 54

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics

We Specialize In Planter Box Materials

531 W. Thomas Road Phone AM 6-2401
Phoenix, Arizona

ARIZONA ASSOCIATION OF NURSING HOMES

The Association of Nursing Homes organized April 13, 1953, in Phoenix. The A.A.N.H. is an institutional group, whose members are obligating themselves to operate morally and ethically in the best interests of health, sanitation, medicine, and humanity.

Evelyn Dodd is secretary of the Association.

Woman's AUXILIARY



Left to right: Mrs. B. P. Storts, President-Elect, Tucson; Mrs. Theodore Heinz, Western Regional Chairman and Second Vice-President National Auxiliary; Mrs. George S. Enfield, President, Phoenix and Mrs. Roy Hewitt, First Viee-President, Tucson.

CONVENTION

The twenty-third annual convention of the Woman's Auxiliary to the Arizona Medical Association convened in Tucson, April 27 and 28, with the registration of 133 members. Conventions are always times to renew old acquaintances, make new friends, and learn what your State Auxiliary has accomplished during the past year. This year the keynote of the convention seemed to be the graciousness and friendliness of all who attended.

The first event of the convention was a brunch held at the Santa Rita Hotel which was attended by ninety women. The decorations of small individual nosegays for each person started the convention off with a gay and festive note. The annual session was called to order at noon by Mrs. W. F. Schoffman, president, who welcomed members of the auxiliary and guests. Our very special guest was Mrs. Theodore Heinz, 2nd Vice-President of the Woman's Auxiliary to the American Medical Association. Reports of the officers and the board were read which showed the splendid work done by these state officers during the past year. This year it seemed the outstanding work was done in nurse recruitment. In most of the auxiliaries films on nursing were shown, pamphlets distributed to schools and future nurse's clubs, and teas and conducted hospital tours were arranged for girls interested in this profession. Doctors' wives were found working in many volunteer service groups throught the state. They also gave financial aid through their local county auxiliaries. The State Auxiliary gave $50.00 to the American Medical Educational fund. A very amusing skit entitled "The Doctor's Wife" was presented to the members at the brunch by the Pima County Auxiliary.

The second general session of the convention was called to order at 9:00 A. M. and despite the early hour it was well attended. The reports of the county presidents were read, and we heard of the outstanding work of the individual auxiliaries. Arizona has 408 auxiliary members in seven organized counties 18 members-at-large, for a total of 426 paid members. This is an increase of 32 over last year. Orchids go to Yavapai County which raised the sum of $5935.60 for the benefit of the Prescott Community Hospital, and to Graham County which donated $75.00 to the American Medical Education Fund. The money was raised by selling paper orchids made by the members to the visiting doctors at the General Practitioners Assembly held in Safford.

Mrs. Theodore Heinz installed the new officers who had been elected the previous day. They were:

President—Mrs. George S. Enfield
Pres.-Elect—Mrs. Brick P. Storts
1st V. P.—Mrs. Roy Hewitt
2nd V. P.—Mrs. Charles S. Powell
Treasurer—Mrs. R. Lee Foster
Rec. Sec.—Mrs. Louis Hirsch
Cor. Sec.—Mrs. William F. Schoffman
Directors:
(1 year)—Mrs. T. C. Harper, Mrs. William F Schoffman
(2 years)—Mrs. Frederick W. Knight

Mrs. Schoffman then presented the Auxiliary with a pin designed by Kenneth Begay of hand made Arizona silver in the shape of the state and engraved with A.M.A. The pin is to be worn by the President during her term of office and then handed down to her successor. Mrs. Schoffman presented the pin to Mrs. Enfield who then gave her inaugural address which will be printed in the news letter.

A luncheon honoring the national representative, Mrs. Theodore E. Heinz, was held at the Elk's Club. One hundred and six members attended. Mrs. Heinz gave us a brief talk on the role of the individual doctor's wife. Her presence at the convention was indeed inspiring to us.

That evening the cocktail party and dinner dance was a gay and happy close to two busy days. Those of us who attended the convention had a wonderful time, and we urge all to attend next year. We went home with a better understanding of the accomplishments of the State Auxiliary. We can be rightfully proud of the privilege of membership pin the Woman's Auxiliary to the Arizona Medical Association.

Mrs. Louis Hirsch
Tucson, Arizona

SUPPLEMENT TO A. M. A. FILM CATALOG NOW AVAILABLE

The A.M.A. Committee on Medical Motion Pictures has announced the publication of a supplement to the list of films available through the motion picture library. This supplement includes 12 motion pictures added to the library since publication of the December 1, 1952 catalog. Copies may be obtained by writing to the committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn, Chicago 10, Illinois.

INTERESTING TOPICS

Bronchogenic Carcinoma and Tuberculosis

Since the teaching of Rokitansky nearly a hundred years ago (1855) that tuberculosis and cancer in general are antagonistic, there has been a gradual change of viewpoint to that of Fried who, in 1935, wrote on "Bronchogenic Cancer Combined with Tuberculosis of the Lungs" (Am. Jour. Cancer, 23:247, 1935). This whole subject has been recently reviewed by Nuessle (Diseases of the Chest, Feb. 1953), who gleaned from the literature reports on 1,335 cases of bronchogenic carcinoma, 85 (6.4%) of whom also had active tuberculosis. The 34 cases reported by Fried are in this tabulation. Fried stated that three explanations are tenable; the disease as associated coincidentally; tuberculosis is a factor in producing bronchogenic carcinoma; or bronchogenic carcinoma activates a pre-existing pulmonary tuberculosis. The possible co-existence of the two diseases will need to be kept in mind, when the matter of differentiating between them on the basis of X-ray findings or clinical symptoms becomes a problem. W.W.W.

RECENT GOOD ARTICLES RECOMMENDED FOR YOUR PERUSAL

(Journals in the County Medical Society Library)

Certain Radiologic Aspects of Abdominal Pain in Children by Carroll Z. Berman, Departments of Radiology and Pediatrics, Boston Floating Hospital. In the Nebraska State Medical Journal, January, 1953. Illustrated by many excellent roentgenograms.

Geriatrics in General Practice. Maryland State Medical Journ., December, 1952. Wingate M. Johnson, M. D., Professor of Clinical Medicine, School of Medicine of Wake Forest College of Medicine, Winston-Salem, N.C. The Trimble Lecture before the Semi-annual meeting of the Medical and Chirurgical Faculty of the State of Maryland, Sept. 12, 1952. A very excellent treatise of the subject.

Granuloma of the Nose and Periarterits Nodosa. Stratton, et als, British Medical Journal, Jan. 17, 1953. Some nice histopathologic illustrations.

Malignant Melanoma of the Eye, by Albert C. Esposito, M.D., F.A.C.S., F.I.C.S., The W. Va.

Medical Journal, March, 1953. History of eight cases, and good review of literature.

Diagnosis of Appendicitis, by Paul Williamson, M.D., Memphis, Tenn. The W. Va. Med. Jour., March, 1953. An excellent and practical article on an old subject but with some good new points of interest.

Pharmacologic Aspects of Adrenocortial Steroids and ACTH in Man. By George W. Thorn, M.D., and Associates, Boston. A series of articles still running in the issue of Feb. 19, 1953 of the New England Journal of Medicine. Reporting on researches carried on by this group of men, under grants from several pharmaceutical manufacturers, the USPHS and National Institutes of Health.

Gastro-enteritis in General Practice. By W. J. Smither, M.D., D.P.H., British Med. Jour., Feb. 14, 1953. "Arguments are advanced for the belief that staphylococcal food-poisoning is the commonest cause of mild cases of gastro-enteritis." Worth reading.

Early and Late Complications of Head Injuries. By Walter D. Abbott, Des Moines, Ia., Journ. of Iowa State Med. Soc., March, 1953.

"The majority of patients suffering from head injuries will recover with adequate therapy, but a keener recognition of complications will be rewarded with lower mortality." Various complications are discused.

The Acne Problem. By Roy L. Kile, M.D., Cincinnati, O. The Ohio State Med. Journ., February 1953. "Not an all inclusive summary, but merely points out some of the salient features of a common disease." One of the commonest of all diseases is acne vulgaris. Fifty per cent of all skin diseases must be handled by the general practitioners. This article will be helpful to them.

Pneumothorax and Altitude Changes

It is quite commonly believed by doctors and patients that airplane flights are dangerous to patients with pneumothorax. To settle this point, a series of observations were carried out by Cabot Brown of San Francisco, reported in Diseases of the Chest, Feb. 1953, using pressure chambers. He learned that "ten patients with assorted forms of permanent and temporary collapse were able to tolerate altitudes of 10,000 feet without discomfort or significant symptoms. Also that ambulatory pneumotherapy patients who are free of dyspnea at sea-level may fly without restriction and without oxygen in modern pressurized airplanes. W.W.W.

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY — X-RAY THERAPY

RADIUM THERAPY

CLINICAL PATHOLOGY — TISSUE PATHOLOGY

ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist

W. Warner Watkins, M.D., Radiologist

Diplomates of American Board of Radiology

Lorel A. Stapley, M.D., Consultant Pathologist



Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

U. C. MEDICAL LIBRARY

JUL 28 1953

San Francisco, 22

ADVERTISED SOLELY TO THE MEDICAL AND ALLIED PROFESSIONS

Lilly

Research that never stops

VOL. 10, No. 7 • JULY, 1953 • TABLE OF CONTENTS — PAGE V





ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 7 JULY, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

LARGE SPONTANEOUS GASTROCOLIC FISTULA DUE TO CARCINOMA OF TRANSVERSE COLON 247
Henry P. Limbacher, M.D., F.A.C.S., Tucson, Arizona

EVALUATION OF MODERN DRUG THERAPY 249
L. Maxwell Lockie, M.D., Buffalo, New York

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 253
Frank J. Milloy, M.D., Phoenix, Arizona

THE PRESIDENT'S PAGE

DOCTOR DRAFT LAW 262

EDITORIAL

GRIEVANCE COMMITTEES 264

LETTER TO THE EDITOR

SOCIETY FOR THE BRAIN INJURED FORMED 265
Samuel R. Joseph, M.D., Phoenix, Arizona

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 267
Guillermo Osler, M.D.

AMERICAN MEDICAL ASSOCIATION ANNUAL MEETING REPORT 270
Robert Carpenter, Executive Secretary, Arizona Medical Association

ARIZONA STATE BOARD OF MEDICAL EXAMINERS 273

"CAVEAT EMPTOR" 274
Arizona Pharmaceutical Page

ANNOUNCEMENT ARIZONA ASSOCIATION OF NURSING HOMES 276

WOMAN'S AUXILIARY

PRESIDENT'S REPORT ANNUAL MEETING, 1953 277
Mrs. William Schoffman, Phoenix, Arizona

DIRECTORY

LABORATORIES XIX
SANATORIUM DIRECTORY XX
DRUGGISTS DIRECTORY XXIV
PHYSICIANS DIRECTORY XXVII

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 341 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tueson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tueson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazic, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Briek P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smith
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Viee President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 7 JULY, 1953

Original ARTICLES

LARGE SPONTANEOUS GASTROCOLIC FISTULA DUE TO CARCINOMA OF TRANSVERSE COLON CASE REPORT

HENRY P. LIMBACHER, M.D., F.A.C.S.
Tucson, Arizona

A sixty-seven year old white retired, electrical lineman was first seen December 14, 1951, as an emergency because of sudden massive hematemesis. When first seen he had marked air hunger, precordial pain referred down his left arm, weak pulse and cold, clammy skin.

Approximately five months previously he had become very constipated for about one month, followed by a severe refractive diarrhea. He had lost about thirty pounds in weight. During the past month he had some epigastric pain relieved slightly by food, with almost daily emesis occasionally "coffee ground" and sometimes contained bright blood. He had had almost continuous emesis of blood for the past four hours.

His past history revealed nothing, he having always been unusually healthy and never having been hospitalized. He had a brother who died of cancer of unknown origin at the age of sixty-five.

Physical examination showed a well developed man with obvious weight loss, a scaphoid abdomen with a large, moderately tender mass in mid-epigastrium which was movable. There was no "rectal shelf" nor supraclavicular "sentinel node." The liver was not palpably enlarged. Blood pressure varied from 84/50 to 104/56; R. B. C. 2,800,000; Hemoglobin 5.8 gms.; marked microcytosis and hypochromia. Urine was negative.

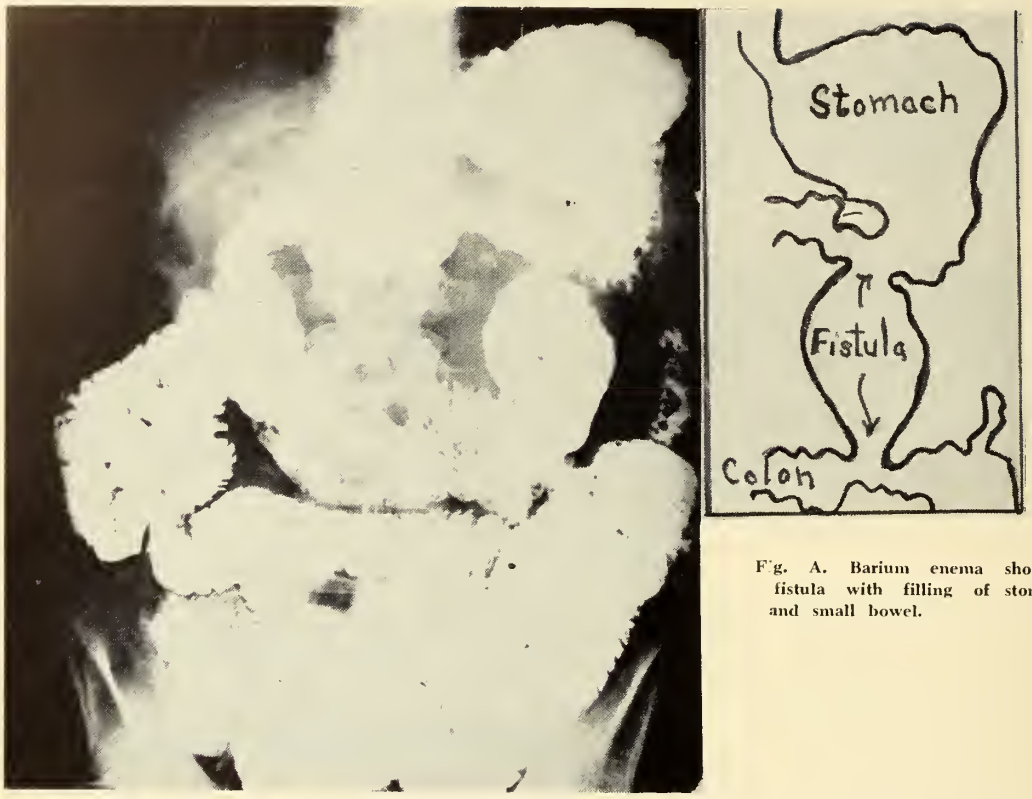
Hospital Course: He was given 1500 cc. whole blood during the night and early morning, following which his blood pressure rose to 120/64 and he insisted on sitting on the edge of the bed. He was maintained on 5% glucose in saline and water and Alcohol Trinidex® Cephalin Flocculation was 1 plus in twenty-four hours, 3 plus in forty-eight hours.

On the third hospital day an upper gastro-intestinal series showed a diverticulum of the greater curvature of the stomach, which measured 5 cm. x 8.5 cm., which communicated with the transverse colon. Duodenum filled normally.

Barium enema was performed the next day. As the barium reached the distal one-fourth of the transverse colon it promptly filled the large sac described above, as well as the stomach and duodenum. There was marked filling of the small bowel from beginning to end. The proximal colon filled only slightly. (Fig. A).

There was no evidence of further bleeding and the patient was placed on a two day preparation for surgery: Terramycin 250 mgms. every four hours with high caloric low residue diet and enemas twice daily containing 5 gms. powdered sulfathaladine in each enema. A Levine tube with continuous suction was placed in the stomach the night before surgery.

At surgery the abodmen was opened through a midline incision from xyphoid to umbilicus. The omentum was found to be densely adherent to the mass. There were practically no adhesions to the small bowel nor to the pancreas. There was no obvious celiac or para-aortic nodal involvement. Liver and pelvis were clear. Two-thirds of the stomach and transverse colon were excised enmasse. The stomach was approximated



F'g. A. Barium enema showing fistula with filling of stomach and small bowel.

to duodenum by open anastomosis of Bilroth I type and end to end open anastomosis was made to unite proximal and distal colon. The patient received 1000 cc. whole blood in surgery, which required three hours. He was returned to the room with continuous Wangensteen suction. He was given Crystalline Penicillin 600,000 units, Streptomycin 0.5 gm. intramuscularly, and Terramycin 500 mgms. intravenously every twelve hours. He was given water, one to two ounces as desired immediately postoperatively with Wangensteen open.

He was out of bed on the second postoperative day and had a negative fluid balance with Levine tube clamped off one hour every three hours. He was given mineral oil, one ounce three times daily beginning the second day. The Levine tube was removed on the fourth postoperative day, the patient had three soft bowel movements and tolerated a full liquid diet. Because he had a marked aversion for hospitalization he was discharged on the fifth postoperative day. His preoperative temperature averaged 97.8° and postoperatively his maximum temperature was 98.2°, pulse 80. R.B.C. on second postoperative day was 4,480,000, Hemoglobin 13.5 gms.

Pathology Report: The specimen consisted of a section of stomach 20 cm. in length and a section of large intestine 20 cm. in length connected by a large fistula with a bulbous central portion with walls of necrotic anaplastic tissue measuring 1 cm. to 2.5 cm. in thickness. Microscopically the lesion was a markedly anaplastic adenocarcinoma. There was considerable mucinous degeneration with clusters of cancer cells embedded in mucous. These were occasionally of the signet ring type on the gastrict side. On the colon side the malignancy was more typical of that seen in colon cancer.

The patient increased his diet at home and returned to the office the tenth day for removal of the sutures. The wound was clear. He was last seen May 8, 1953, 18 months post surgery, at which time there was no evidence of recurrence, and he had gained from 124 lbs. immediately postoperatively to 166 pounds.

Comment: It was concluded at the time of surgery, because of the anaplastic character of the lesion and its wide extension, that the probability of cure was not good and that extensive resection, i.e., wider resection of the colon, total gastric resection and splenectomy with radical excision of celiac and para-aortic nodes, would greatly increase the morbidity without appreciably increasing chances for cure. As recently reported, it is the contamination of the proximal

small bowel by the return of feces into the stomach and back to the intestine that causes sepsis and rapid debilitation in gastrocolic fistulae. This fact was utilized in preparing this patient with enemas of sulfathaladine, together with oral and intravenous Terramycin, which contributed to the aseptic postoperative course.

Summary and Conclusions: An unusual case of neoplastic gastrocolic fistula is presented, which was admitted following severe hemorrhage, responded well to excision of stomach and transverse colon enmasse and was discharged on the eleventh hospital or fifth postoperative day. With use of antibiotics and careful clinical evaluation an extensive resection was performed with a minimum of laboratory procedures and hospitalization.

The writer wishes to acknowledge the services of Herbert D. Welsh, M.D. for preparation of the x-ray photographs.

EVALUATION OF MODERN DRUG THERAPY

L. MAXWELL LOCKIE, M.D.
Buffalo, New York

Tremendous strides have been made in the field of therapeutics during the past twenty years. Inasmuch as therapy is an important part of every physician's practice, it is with great interest that one looks over the recent past evaluate the various drugs which have been advocated and to determine their effectiveness. From the patient's point of view, therapy is the thing that counts.

In the present day, the trend is strong toward the use of single drugs. Thus, it is easy to determine if that drug is effective. This is more difficult when mixtures are prescribed. The metric system is the official measure in the United States. It is written more and more due to its ease of use. If abbreviations are written, to avoid mistakes, a physician must remember there are official abreviations for each drug and chemical substance. Also, medication in a solid form is preferred over liquids as the dosage is more accurate.

Twelve and one-half per cent of the total prescriptions filled by pharmacists in Buffalo, New York, are for antibiotics. Twenty per cent of these are for local use. In addition, three and two-tenths per cent of total prescriptions are written for sulfonamides. It would be logical to consider this group first.

Antibiotics

The mode of action of different antibiotics varies, as streptomycin and penicillin will kill organisms, while those of the A-C-T (Aureomycin, Chloromycetin and Terramycin) group merely inhibit their growth. Some antibiotics act on non-pathogenic organisms, but are ineffective against pathogens, while others are effective in vitro and not in vivo. The clinical value of some very potent preparations is limited by their extreme toxicity. To be effective, enough concentration of the antibiotic must be established where the infection exists. The toxicity of the antibiotic is dependent, to a certain extent, on dosage (except penicillin) and to sensitivity.

Absorption from intramuscular injection may be decreased in the following ways:

1. Suspension of crystals in a slowly absorped vehicle.
2. Relatively insoluble forms of the drug, such as procaine penicillin.
3. Large particles.
4. To coat them with water-repellent substances, such as aluminum monostearate gels.

The following antibiotics are those commonly in use today and their principal indications listed.

Penicillin. Streptococcus infections, Staphylococcus infections, Pneumococcal infections, Gonorrheal infections, Spirochetal infections, Prophylaxis — ophthalmia neonatorum, Prophylaxis — reccurence of rheumatic fever, Clostridial infections, especially peritonitis and gas gangrene, Diphtheria combined with antitoxin, Some respiratory infections.

Streptomycin. Tuberculosis with PAS, Tularemia, Brucellosis with A-C-T, Influenza bacillus, Friedlander's pneumonia.

Aureomycin, Chloromycetin, Terramycin. This relatively new group of antibiotics has a broader spectrum than penicillin alone. Occasionally a patient responds better to one of the group, but the evidence as of today indicates generally that one is just about as effective as the others, except against typhoid infection where chloromycetin is preferred. Gram-negative and gram-positive infections, Rickettsial infections, Virus pneumonia, Typhoid (chloromycetin preferred), Bru-

*Professor of Therapeutics, Medical School, Univ. of Buffalo.

cellosis with streptomycin, Water solution for impetigo.

Bacitracin. Rarely produces sensitivity when absorbed from the gastro-intestinal tract. Is very effective in local infections. May be used systemically in some penicillin or A-C-T resistant infections of severe grade.

Tyrothricin: Useful in local infections of respiratory tract and skin.

Gantrisin: Especially useful in some urinary tract infections.

Polymyxin: Pyocyanus infections respond very well, especially meningitis and ear.

Sulfadiazine: Still the most commonly used form of sulfonamide. There is little difference in price of various kinds. It has minimal reactions and a relatively broad spectrum. A mixture of sulfonamides makes it possible to give more without crystalization in the urine. The principal uses are as follows: Gram-negative and gram-positive infections, Upper respiratory infections in children, Chancroid. Epidemic meningitis, Prophylaxis—rheumatic fever, Urinary infections, Bacillary dysentery.

Cortisone and ACTH

Since September, 1948, cortisone has occupied a spectacular place in affording relief of symptoms of rheumatoid arthritis. Since then, other uses have become known. Cortisone is a chemical which is one of the products of the adrenal gland of the body. It is made synthetically so that large amounts are available now. ACTH is an extract made from the pituitary glands of animals. This stimulates production of hormones, including cortisone, from the cortex of the adrenal gland. Thus, if a person does not have an adrenal gland cortex, ACTH is not effective. For the most part, ACTH and cortisone produce comparable results.

There are constant improvements in the manufacture of ACTH so that the dosage now of pure products is much smaller than that of the original ACTH. In fact, in one of the newer preparations, 2 mg. a day is able to do as much as 80 mg. of the original. Important side effects to watch for are Cushing's syndrome, fluid retention, gastro-intestinal and cardiac accidents, elevation of blood sugar, mental stimulation and withdrawal symptoms. All of these are quickly reversible except the mental symptoms which may take a long time. Important uses are as follows:

To relieve symptoms and signs of rheumatoid arthritis, Idiopathic stearrhea, Status asthmaticus, Serum sickness, Acquired hemolytic anemia. Inflammatory eye conditions, to prolong life in lupus erythematosis, Chronic non-specific ulcerative colitis.

Hydrocortone: Recently this has become available for use by local injection into painful joints of rheumatoid arthritis or osteoarthritis. A few patients have been reported to whom it has been given orally. The effects are comparable to cortisone, but the side effects are much less. Hydrocortone, when injected into the joint, will stay there seven times as long as cortisone.

Gastro-Intestinal Drugs

Banthine: A preparation which is found to be very effective in treating the symptoms of peptic ulcer. It is a true anticholinergic drug and gives consistent reduction of hypermotility and usually a reduction of hyperacidity. Most authors feel that after symptoms are relieved, a maintenance dose is necessary to prevent recurrences. Also, it has been found to be very effective in stopping excessive perspiration. Even a 50 mg. tablet may give marked relief for a long period of time.

Calcium carbonate: In the opinion of many, this old-time drug maintains its superiority as an antacid in the face of many other products.

Anion-Exchange Resins: When used orally in the treatment of peptic ulcer, the X-ray disappearance time of the ulcer crater will be about 45 per cent less compared to other forms of therapy. Apparently, it binds hydrochloric acid and inhibits activity of pepsin. It is effective.

Belladonna: Probably the most widely used medication to relieve gastric spasm.

Laxatives and Cathartics

There is little change in these preparations over the years except for a few of the bulk-producing forms.

Cascara: Acts on the large intestine.

Castor Oil: Acts on the small intestine.

Phenolphthalein: Acts by stimulating the colon.

Bulk-forming Preparations: Gives psychological help to many. However, a well-established habit time, once a day and no other time, usually is just as effective.

Sedatives and Hypnotics

Over the years, bromides and chloral have proved to be effective sedatives and are the drugs of choice of many of the older physicians.

Barbiturates: These are most popular. The one to use is determined by the time action desired. Long-acting — barbital and phenobarbital, Mod-

erately — nembutal and amytal, Short acting — seconal, Ultra-short — evipal and pentathol sodium.

Pain-Relieving Drugs

Morphine: Still remains the most popular drug used for the relief of pain. If a person is sensitive to it, pantapon may be substituted. The action of morphine occurs in the pain centers of the optic thalamus.

Codeine: Will help to relieve pain, especially when combined with salicylates. However, the constipating effect and mental depression frequently outweigh any prolonged benefit as an analgesic. The principal use is in the control of cough where it has a highly selective depressive action on the cough center. In this case, a liquid preparation of codeine sulfate or phosphate taken every hour or so is more beneficial for the relief of cough than any other single substance.

Demerol: Is a relatively recent analegsic which is very useful in the relief of pain. It is given best intramuscularly. There are side effects such as dizziness and sweating, which may interfere with its usefulness. It does not constipate or depress nor is it as habit-forming as morphine.

Methadon: Has been developed to take the place of morphine. Although it is not a closely related chemical, it does have the same pharmacological actions. Used for relief of pain over long periods of time and offers help in treatment of morphine addiction.

Etamon: Helps to control pain and swelling in chronic venous insufficiency. 200-500 mg. intravenously once or twice a week.

Depotestosterone: Painful breast metastases requiring only one injection daily.

Testosterone, Proprionate: For advanced breast cancer, particularly when metastases into the bone have occurred.

Magnesium, Carbonate: To relieve pain in Paget's disease. This is given several times a day, stirred in a small amount of water.

Vitamins

Vitamin A: Is found in almost all foodstuffs. However, where such a deficient diet has been used, there will be xerophthalmia and hyperkeratosis of the mucous membranes of the mouth and esophagus.

Vitamin B Complex: Has been one of the most effective drugs to increase the financial status of pharmaceutical houses as well as the middle man and retailer. It probably is of use in some cases organically, but its greatest use, I am sure, is the psychological effect. Many patients say they feel better while taking it as a general tonic. It is the only medication which is of value in neuritis. Intravenously, it has been useful in the relief of burning and tingling in the feet.

Nicotinic Acid: Necessary to prevent pellagra.

Vitamin B_{12}: Apparently is the potent substance of liver in the treatment of pernicious anemia. It will do everything that crude liver extract or refined liver extract will do for these patients. In order to be most effective, it should be given parenterally.

Vitamin C: Is also a much discussed vitamin. It must be taken at fairly regular intervals in order to prevent scurvy. As far as we know, Vitamin C is not stored in the body.

Vitamin D: Is a must in the diet of children up to the age of two so that rickets will not occur. Its use in the treatment of rheumaoid arthritis has long since been discarded.

Allergy Drugs

Benedryl, Pyribenzamine, Trimeton, Theopherin: Represent four different types of antihistaminic substances. If one is not effective in the treatment of allergic states, another can be tried. Serum sickness, hay fever, rose fever, and asthma are usually well-controlled, temporarily, by one of them. Protein shock which follows the administration of drugs can usually be avoided when one of these substances is given before. In blood transfusion, a small amount may be given with the blood to prevent reactions.

Cardio-Vascular Drugs

In this field, there are thousands of preparations which have come and gone, and even today authorities cannot agree on which are the best.

Digitalis: Probably the best heart medication is the powdered leaf of digitalis. The discovery of its use at the end of the 18th century was undoubtedly one of the greatest advances in medicine. In this case, it is advisable that a physician remember to use the product of one manufacturer as potencies are apt to vary, although the U.S.P. sets definite tests for standardization. Greatest use is in control of heart failure or impending heart failure, as well as in some cardiac irregularities.

Cation-Exchange Resin: Of carboxylic type. Withdraws sodium ions from the intestinal contents and thus limits the formation of edema. In the acid of the stomach, it releases K ions and binds H ions. In alkaline medium of intestines H ions are released, cations attracted, bound and

then carried out. There are potassium ions included in some preparations to compensate for those which may be removed from gastrointestinal tract to guard against K depletion.

Hexamethonium: Is one of the best preparations to use in the treatment of hypertensive emergencies. It is given in two doses daily over a long period of time. Although it may tend to produce symptoms of shock and hypotension, these effects can be easily controlled by having the patient elevate the feet for a few minutes. For a hypertensive crisis, the action is extremely prompt.

Hydergine: Is a new preparation containing hydrogenated ergotoxine alkaloids. It has central and peripheral actions producing vasodilatation, lowering the blood pressure and slowing the heart. Adrenergic blockade occurs. Useful in the treatment of peripheral vascular diseases and an adjunct in treatment of hypertension along with other measures. May be given hypodermically several times a week.

Paveril Phosphate: Works well where papaverine is indicated. There are particularly good effects in some patients with angina.

Sodium Heparin: Recently an investigator has found that 100 mg. weekly reduced markedly the number of attacks of angina pectoris.

Tetraethylammonium Chloride: Is of great value in evaluating the true hypertensive state, especially before surgery.

Nitrites: Are still the main stand-bys for the relief of muscular spasm of the coronary arteries, gall bladder, urinary tract and bronchial tree. It relaxes smooth muscles directly.

Isotopic Drugs

Iodine 131: Is an isotope of iodine which has a half life of eight days. It is very useful in the treatment of some patients with hyperthyroidism. Usually 2 mc. are given daily for an average-sized gland. About 15-20 per cent of thyroid cancers will absorb Iodine 131. Some of the patient's have been at death's door when this was given. This has stopped the progress of the disease, melted away metastases and enabled patients to live longer. It is too early to say a cure has been effected.

Phosphorus 32: Is one of the most widely used therapeutic isotopes. It is the drug of choice in the treatment of polycythemia vera. Also, very recently, it has been found the P-32 is picked up by epithelial and neural tumors. Found to be useful in the differential diagnosis of malignant tumors of the eye versus detachment of the retina. Geiger counter is placed over the eye to see if unusually large amounts are accumulating there. If so, that would indicate the presence of a malignant growth.

Gold 198: Is also beginning to be used widely. It has a half life of 2.7 days. It may be injected directly into a large cancerous mass or sewed in nylon thread impregnated with it. These sutures can be taken out at any time if necessary. Another use is that to inject into the peritoneal or thoracic cavity where a large amount of fluid is present due to malignant growths. It will retard the formation of the fluid.

Miscellaneous

Benzedrine and Dexedrine: Are useful to combat depression and narcolepsy. Given before breakfast and lunch, they diminish the appetite. If taken late in the day, they may produce insomnia.

Dicumerol: Use prophylactically in major surgical procedures to prolong bleeding time. No pulmonary emboli in 700 cases in a recent series. Also, routinely used by many in treatment of coronary thrombosis.

Heparin: Should be used when immediate rise in bleeding and clotting time is desired. It is valuable in that first 72-hour period before Dicumerol effect is obtained.

BAL: Is of special interest inasmuch as it usually controls readily any toxic manifestations following the use of gold, which is so widely given in the treatment of rheumatoid arthritis. The insoluble forms of gold are not controlled as easily as myochrysine or solganol. It is also of use in the treatment of chronic arsenic poisoning and mercurial poisoning. In mercury poisoning, if used within an hour, prevent nephrosis. Much less effective after six hours.

Cupric sulfate: Powdered form applied full strength directly to a canker sore will relieve it promptly.

Dramamine: Is of great value in a high percentage of people in the prevention of motion sickness. Usually 50 mg. orally or 100 mg. rectally given one hour before the trip is to start will be sufficient for the day. Moreover, it may be repeated in 4-6 hours.

Ergotamine: Is useful in migrane. Decreases pulsations of cerebral vessels and the tug on the meninges is relieved.

Quinine sulfate: Has been found to be of

great value in the treatment of night cramps of the legs.

Thiouracil: These preparations have decreased the hyperactivity of the thyroid gland in many patients. Usually it can be given over long periods of time with few toxic reactions.

Urecholine: Is of benefit when retention of urine occurs in absence of urinary obstruction.

Benemid: A new drug which is capable of reducing the level of uric acid in the blood by 30 per cent. It is especially useful in the treatment of patients with gout and gouty arthritis, although it does not cure an acute attack of gouty arthritis, nor will it prevent its appearance. However, it appears that the daily administration will lessen the number of attacks. In some patients observed over long periods of time, tophi have disappeared. The usual dose is a half gram twice daily. There are very few reactions to it when given in this amount, although bladder symptoms may occur in a few patients.

Colchicine: Is the oldest known drug of which we have knowledge. It was written in the Ebers Papyrus, 1550 B.C. It is one of 58 chemical agents with mitogenic effect. The use of colchicine is limited almost exclusively to the treatment and prevention of gouty arthritis. When a patient has an acute attack of gouty arthritis, he should be given a dose of ½ mg. every hour until nausea or a loose bowel movement occurs. Then it must be stopped. Between attacks, it is wise to give ½ mg. twice daily as a prophylactic dose. This can be increased quickly if an acute attack occurs.

Estrogens: There are many types of estrogen therapy available. Some patients react well to one and others to another form. If a woman has menopausal symptoms which require consultation with a physician, an estrogen should be given to relieve these symptoms. However, it should be used cautiously in the premenopausal patient.

Salicylates: In the form of acetylsalicylic acid or sodium salicylate act in the thalmus and in the kidney tubules. They are the most widely used drugs for relief of pain. When given in large amounts, usually relieve symptoms entirely of rheumatic fever. Valuable therapentic test.

Cinchophen: Increases uric acid excretion due to direct action on tubules of kidney. Reports of atrophy of the liver were recorded as seven cases per year up to 1936 and one case per year since. That means one case in approximately 10,000,000 doses.

Chloroquin: Useful in liver amebiasis. Malaria. 1 gm. at once; 0.5 gm. in 6 hours; 0.5 gm. the next two days.

Prostigmin: Useful in myasthenia gravis. Dosage depends on needs.

Folic Acid: Is found in all tissues. Transforms megaloblasts into mature RBC's. Useful in sprue, topical macrocytic anemia and anemia of pregnancy.

Nitrogen Mustard & *Tri-ethyl-malamine*: Useful in Hodgkins Disease. Tri-ethyl-malamine has the advantage that it can be taken orally.

Thus in the armamentarium of the physician, he must use some of the old and some of the new forms of medication in the treatment of disease.

PHOENIX *Clinical* CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE NO. 17351

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

Dr. Charles A. Noble*: This case is that of a sixty-two year old married expressman who entered the hospital complaining of cough of six months' duration and hemoptysis of two weeks' duration.

Two years prior to admission he had marked dyspnea on exertion. Six months before admission he began to have a racking non-productive cough. Three months before admission his cough became worse and was accompanied by a sensation of a lump in his throat. His coughing was accompanied by a good deal of shaking of the body, shaking of the chest, the attacks coming on three to five times a day. He developed sweating and occasional attacks of vomiting. Two weeks before admission he first spat up a small

*Recently senior interne on the East Medical service.

amount of blood during one of his coughing attacks. A week and a half before admission he noted enough weakness to make him stop work. Five days before entering the hospital he was awakened during the middle of the night by a feeling of fullness in his mouth and spat up half a pint of bright red blood. From that time he continued to cough up small amounts of bright red blood. There was no pain, but an occasional sense of soreness chiefly in his left chest, during a coughing attack. He lost his appetite. He had lost 12 pounds in the past year and some 40 pounds in the past three years.

He had been married for thirty-five years and had four children living and well. His wife was in fairly good health except for diabetes. He denied Neisserian infection and lues by name and symptom.

He entered the hospital showing evidence of weight loss. He was only moderately well developed. The pupils reacted to both light and accommodation. The arteries of the discs showed sclerosis and there were early cataracts of both eyes. There was quite striking leukoplakia of the tongue. The heart was normal so far as could be demonstrated. The blood pressure was 130/65. There was extensive dullness in the left chest both anteriorly and posteriorly from the axillary line in front and from the midscapular region in the back with diminished breath sounds, voice sounds and tactile fremitus and occasional coarse rales and sibilant and sonorous rales. In the region of the left axilla in front there were increased breath sounds, bronchial in quality, almost cavernous. There was no egophony. No Corrigan pulse was noted. Under examination the peripheral vessels showed definite sclerosis, perhaps not more than is to be expected in a man of his age. The ankle and knee jerks were normal.

The red blood count was 3,750,000, the hemoglobin 75 per cent, the white blood cell count 9,550. There was a normal differential count and slight achromia on smear. The urine and stools were negative. Two sputa were negative for tubercle bacilli and spirochetes. The Wassermann and Hinton reports, which came back after the patient had died, were both strongly positive.

The x-ray report, which came back to us also just before he died, was quite suggestive, almost definite for aneurysm of the middle of the arch and the first part of the descending portion of the aorta, although on admission he had been sent to us with a diagnosis of primary carcinoma of the lung, and until that x-ray report came back that was the diagnosis that was favored in the ward.

Two days after admission, after a normal chart and after coughing a small amount of blood, he suddenly had a massive hemoptysis and died within a few minutes.

DR. FRANK J. MILLOY

This is a very interesting case involving the differential diagnosis of hemoptysis in a 62 year old, married expressman. It also revives an old query of whether one ever dies directly of their syphilis. I believe the answer is occasionally, and I believe that his man did. I am reminded—so I think the discussion can be simple by staying with the evidence of syphilis as presented in the history, or it can be made difficult by trying to add other pathology. This is the 5th case for discussion here this year with a positive Wassermann. Two of the patients died of syphilitic processes. One had an obscure etiology. And one had a malignancy. At another hospital this case was diagnosed carcinoma of the lung. At this hospital the diagnosis was changed to a ruptured aneurysm after the x-rays were seen.

Dr. Cabot compiled the statistics on 3,306 cases of hemoptysis in Massachusetts General Hospital in his book which was published in 1914 and they are worthy of note: Tuberculosis 1,723; Mitral Disease 1,123; Unspecified Cause 183; Pulmonary Thrombosis or Embolism 141 Pulmon;-ary Abscess or Gangrene 77; Bronchiectasis 58; Pneumonia 52; Anerysm 22; Trauma 17 and Neoplasm 6. Making a total of 3,306.

The first impression of these statistics is that cancer of the lung must have been rare in Dr. Cabots time.

A 62 year-old man with a history of good health and 2 negative sputum tests for tubercle bacilli very likely does not have pulmonary tuberculosis. The protocol states that 2 years before admission the patient had marked dyspnea on exertion. Then 6 months before admission he began to have a racking non productive cough. Three months before admission his cough became worse. Two weeks before admission he raised his first blood. Ten days before admission he stopped work. And four days before admission he had his first real hemorrhage. He had no pain and lost his appetite. He lost 40

pounds in 3 years, 12 in the last year. He had a positive Wassermann. He was married at 27 and his wife and 4 children were healthy so he must have contracted his primary infection quite early in life.

The striking leukoplaskia on the tongue indicates latent lues. The advanced sclerosis of the peripheral blood vessels, and the blood vessels in the eye grounds fit the picture. The racking, rasping non productive cough is the cough of aortic aneurysm. The x-ray taken in the hospital was almost definite for aneurysm of the middle of the arch and the first part of the descending aorta. Aneurysm of the arch of the aorta has been called the aneurysm of symptoms. And this man had plenty of symptoms. With the diagnosis of aneurysm so obvious, I am wondering for what good reason we are being called to discuss this case here. At any rate he had an extensive pathological process in the left lung. There was extreme dullness from the axillary line in front to the midcapular line posteriorally. There were occasional rales and there were sibilant and sonorous rales. In the left axilla in front there were increased breath sounds, bronchial in quality, almost cavernous.

The subject of syphilis of the lung is an interesting one. It is particularly conspicuous by its rarity. Osler found only 12 cases in 2,800 necropsies at Johns Hopkins Hospital and 8 of these were congenital. Symmers found 12 cases in 4,880 necropsy, Protocols and Clayter could not find a single example of lung syphilis in 13,000 specimens at the Army Medical Museum in Washington.

On the other hand Funk found 4 cases of pulmonary syphilis in 1,200 supposedly tuberculosis patients admitted to Jefferson Chest Hospital. Greerman investigation of 817 patients applying for examination at the Dispensory of the Anti-Tuberculosis-League in Houston, found 145 with positive Wassermann tests, and of these, 39 were non tuberculous. In 2 of these he felt justified in making a diagnoses of pulmonary syphilis, though he believed more of the 39 had pulmonary syphilis. Wile and Marshall write as follows: "In its varicus forms, syphilis of the lung may present itself with a clinical picture of any phase of pulmonary disease. For this reason the condition probably exists to a greater extent than is indicated by either clinical or pathological reports. Karschner and Karschner state: From an extensive survey of the literature and from our own clinical experience we feel that cases of syphilis of the lung are quite common and, if recognized, often give rise to therapeutic surprises. Munro found 6% of 100 cases admitted to Glenlomand Sanitarium had syphilis of the lung. In 209, or over 22% of 948 patients with advanced tuberculosis, Watkins (and the initials are W.W.) made a diagnosis of combined syphilis and tuberculosis from the roentgenograms in association with the clinical symptoms. O'Leary reviewed the records of 60 patients referred to his section at the Mayo Clinic over a period of 20 years because of the suspicion of syphilis of the lung and could find only 4 cases of the entire group that proved to be pulmonary lues. Carreva studied the lungs of 152 syphilities. He found positive evidence of pulmonary syphilis in 12 cases. He states that the diagnosis of pulmonary syphilis must be made microscopically. He divided the 12 cases as follows: 1. Gumma of lung 3 cases; 2. Syphilitis peribronchitis and arteritis 2 cases; 3. Syphilitic Fibrosis and arteritis 4 cases; 4. Syphilitic arteritis. Total 12 cases or approximately 8%. To sum up the literature on acquired pulmonary syphilis, something over 200 cases have been reported, but only a minority have been confirmed by autopsy. Most of the references which I reviewed consisted of a report of one case and most of these cases appearing in the literature have been diagnosed on the basis of clinical evidence.

So that after all the diagnosis is presumptive. The ultimate proof is demonstration of the treponema pallidum in either the tissue or the sputum. This has been possible in but few of the 200 cases reported but it was done in one patient who had a lobectomy performed.

The outstanding symptoms of syphilis of the lung are: (1) cough—likely to occur in paroxysms —may be very dry and racking—later may become very productive. (2) Sputum—usually mucopurulent hemorrhage occur in about ⅓ of all cases. It was almost a constant finding in the case reports I reviewed. Most important finding is abscence of tubercle bacilli.

DYSPNEA is a prominent and important symptom. Much more common than in tuberculosis. Our patient had it for a while two years before admission to the hospital.

PAIN is more pronounced than in tuberculosis. Fever, night sweats, emaciation occur in 40%.

PHYSICAL SIGNS: Any combinations of

physical signs of the chest may be demonstrated. The most remarkable thing about the physical signs, which may include the x-ray findings also, is that they may be all out of proportion to the patients clinical symptoms. That seems to be the situation with our patient today. He had an attack of dyspnea 2 years before entrance to the hospital. The history does not state how long it lasted. Then six months before entry the cough appeared. It was a racking non productive cough, paroxysmal in character. He lost 40 pounds in 3 years—12 pounds in the past year.

In spite of all these symptoms the man did not quit work until 10 days before entry to hospital. And it apparently was the sight of blood in his sputum on two occasions that prompted him to seek medical aid. And during the two days in the hospital he had a normal chart, except for coughing up a small amount of blood once. Then he suddenly had a massive hemorrhage and died.

Rentgenologic examination gives no more distinctive evidence than the history and physical examination. In the early stages Watkins (again the initials are W.W.) described confluent shadows of varying density inclined to irregularity and massiness of the edges, tending to mass along the heart border and the larger bronchial trunks. Gummata he states, will cast shadows irregular in size, with edges not clear cut, but more so than those of consolidations, with centers of diminished density when caseous, and pointed projections of fibrous tissue when healing. Syphilitic fibrosis produces shadows consisting of striations arising from dense hilus shadows and radiating to the periphery.

Golden lists the following as of value in the x-ray diagnosis of pulmonary syphilis. Syphilis usually affects the lower part of the lung, seldom invades the apex. The process is apt to be more marked about the hilus, progressing from this part of the lung along the bronchi to the periphery. It tends to develop unilaterally and may completely destroy the functions of one lung, involving the other comparatively little or none at all. It involves the pleura extensively and causes marked connective tissue reaction producing radiating or stellate scars which may be extensive and which rarely calcify. To Summarize:

1. Very few cases are proved pulmonary lues by demonstration of the terponema pallidum.

2. By far the greatest number of cases are proved by the result of the therapeutic test.

3. The most important differential determination is whether the case in question is syphilis or tuberculosis.

4. And the next most important is whether both syphilis and tuberculosis are present. In the old days a patient with active pulmonary tuberculosis had a positive Wassermann and was given arsphenamine, death usually intervened in short order. The advent of bismuth made it easier to treat such cases. I do not know the effect of the antibiotics on such cases.

5. Pulmonary lues occur in two forms.
   1. Syphilitic gummata.
   2. Syphilitic fibrosis.

The prognosis of pulmonary lues is fairly good and responds fairly well and rapidly to specific treatment unless too much fibrosis has developed. If this patient had been less unfortunate and had not suffered a fatal hemorrhage he might have recovered from his pulmonary lues. That is unless he had an aneurysm instead.

I believe this man died of a syphilitic process and it was either a syphilitic gummatous process of the lung or a ruptured aneurysm of the aorta. Gumma of the lung is much the rarer condition. So I believe it is more likely to be a ruptured aneurysm.

CLINICAL DISCUSSION

Dr. William David Smith: I have not much to add to the discussion. He came in as a case of hemoptysis for diagnosis and until he had the laboratory work there was essentially nothing on which to make a diagnosis of aneurysm so far as the heart was concerned. The signs were pulmonary rather than cardiac. I suppose even before he had a Wassermann or an x-ray the leukoplakia might have made us a little more suspicious, for while leukoplakia can occur in smokers it is more common in syphilitics. There was nothing in the examination of the heart to lead us to think there was either syphilitic aortitis or aneurysm.

Dr. George W. Holmes: The x-rays of course show a very definite mass in the chest. The only question is whether it is aneurysm or tumor. The thing which confused us a little was the dullness at the root of the lung. That might have been interpreted as a primary carcinoma of the bronchus with metastases to the glands along the trachea or it might have been interpreted as an aneurysm of the descending aorta with pressure on the bronchus producing atelectasis. As I remember it there was no pulsation of the



1. *Dizziness . . . movement is within the head.*
2. *Objective vertigo . . . the environment is in motion.*
3. *Subjective vertigo . . . the patient himself moves in space.*



2



3

TYPES OF VERTIGO:

Their symptomatic relief with Dramamine®

The disagreeable sensations of dizziness which physicians are frequently required to explain to patients have been described by Simonton[1] as varying from a slight sensation of confusion to severe vertigo.

While dizziness or giddiness is classified as a sensation of unsteadiness with a feeling of movement within the head, in vertigo the environment seems to spin (objective vertigo) or the body to revolve in space (subjective vertigo). Labyrinthine disturbances are likely to cause a sensation of rotation. Among the more common causes of dizziness or vertigo, this author lists: Damage to the vestibular nuclei or tracts in the central nervous system, involvement of the vestibular end organs by disease of the ear, Ménière's disease, toxicity of drugs, ocular vertigo from sudden diplopia, visual field defects, looking down from heights and motion sickness due to hyperactive labyrinthine reaction from riding in vehicles.

Dramamine (brand of dimenhydrinate) has proved effective in treating many of these disturbances. The indications for which Dramamine is now Council accepted include: Motion sickness, the nausea and vomiting associated with pregnancy, certain drugs, electroshock therapy and narcotization; vestibular dysfunction associated with streptomycin therapy; the vertigo of Ménière's syndrome, hypertensive disease and that following fenestration procedures, labyrinthitis and radiation sickness.

1. Simonton, K. M.: The Symptom of Dizziness, Arizona Med. *6*:28 (Sept.) 1949.

SEARLE *Research in the Service of Medicine*

tumor by fluoroscopy. The presence or absence of pulsation of x-ray examination is very unreliable anyway. Some tumors that are aneurysms do not pulsate. In the oblique position the lesion seems to be distinctly associated with the aorta and is of a fusiform character rather characteristic of aneurysm. It does not seem likely that a mass in the region of the hilus would follow the aorta as well as that does and produce such a fusiform shadow. There is absence of lobulation, a point which would also be somewhat in favor of aneurysm. The diaphragm is high on the left side and the left lung field is smaller than the right, also evidence in favor of pressure on the bronchus. We felt that it was more likely to be aneurysm than tumor. The absence of any change in the heart shadow does not help much one way or the other. In luetic aortitis with aortic regurgitation and involvement of the aortic valve we should get a picture of enlarged heart with the characteristic shape; but in the absence of involvement of the valve the heart is usually normal.

Dr. John I. Bradley: Can you identify the bronchus to the left lower lobe in this film?

Dr. Holmes: There is some evidence of pressure on it. The left descending bronchus is not very well shown, but I think there is some narrowing of the trachea at this point.

X-RAY INTERPRETATION

The findings are probably due to ancurysm of the arch of the aorta with bronchial compression and partial collapse of the left lower lobe.

CLINICAL DIAGNOSIS

(From Hospital Record)

Aneurysm of the aorta, ruptured.

Possible carcinoma of the lung.

ANATOMIC DIAGNOSIS

Syphilitic aortitis.

Aneurysm of the thoracic aorta with rupture into the left bronchus.

Bronchopneumonia, bronchiectasis, lower lobe of the left lung.

PATHOLOGIC DISCUSSION

Dr. Bradley: At autopsy we found a mass corresponding to this shown by x-ray and continuous with the aorta. The right lung and the upper lobe of the left lung were about normal in size, perhaps slightly distended and emphysematous. The left lower lobe appeared relatively small. It was firm, adherent laterally to the parietal pleura, and the pleura was very much thickened. We found the descending branch of the left bronchus going to the left lower lobe adherent to the wall of the aortic mass. On opening the bronchus we found a defect in the anterior wall of the bronchus roughly a centimeter in diameter which was plugged with a mass of soft friably grayish material. On opening the aorta we found a fusiform aneurysm of the thoracic aorta beginning approximately in the region of the arch and extending down to the lower portion of the thoracic aorta, covering a distance of about 12 centimeters. The wall of the aneurysm was quite thin. There was over a good part of it a thick layer of laminated clot. In the medial part of the wall of the lower third of the aneurysm there was a relatively large defect about 2 centimeters in diameter occluded by a fairly recent thrombus. This defect lay just over the defect in the bronchial wall. It is apparently the explanation of the massive hemoptysis.

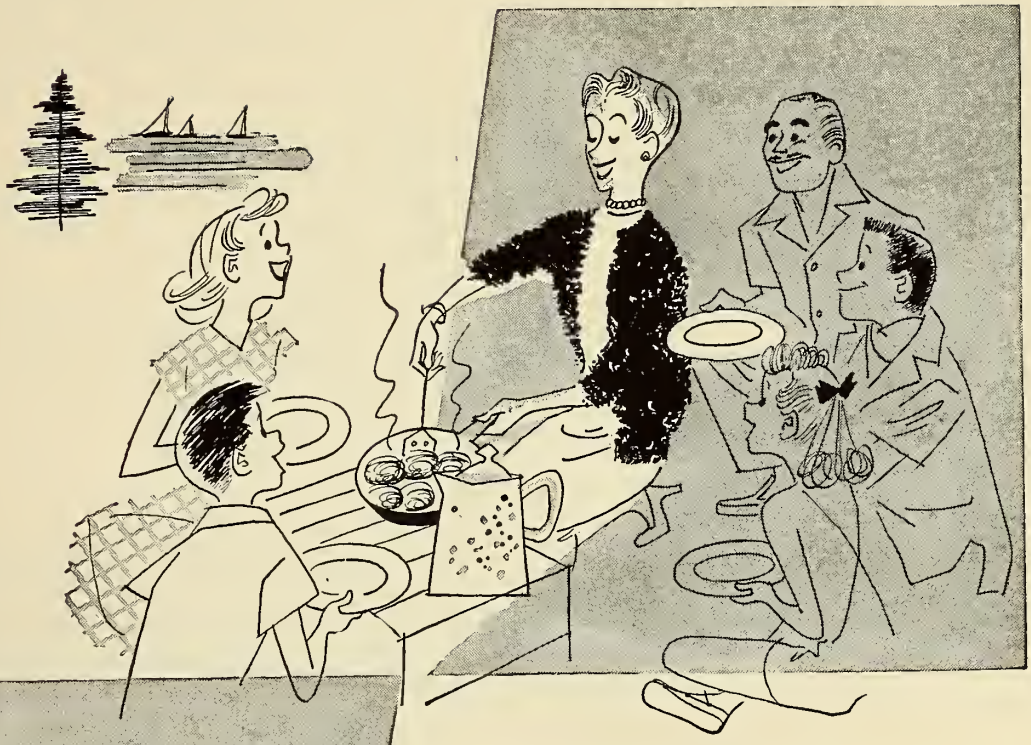
On section the left lower lobe showed interesting changes. In the central portion of the lung just below the area where the bronchis is adherent to the aneurysm there are a number of dilated spaces, apparently dilated bronchioles. Around them the lung tissue is firm, yellowish-white and fibrous. On the outside of that zone of fibrous tissue around the dilated bronchioles there is an irregular patchy area of consolidation.

The aorta at either end of the aneurysm showed changes typical of syphilitic aortitis. There were several small saccular outpocketings about 3 to 4 millimeters in diameter and about the same depth in the first portion of the aorta, apparently beginning aneurysms. The aortic valve showed practically no involvement, merely a slight separation of the attached margins of the cusps. The changes however were not sufficient to produce any functional impairment. The heart itself was negative.

Dr. James H. Means: The history is of interest from the point of view of diagnosis. The cough as I understand it was paroxysmal from the beginning, with a good deal of distress and with some choking attacks at night. That and his having hemoptysis later would suggest aneurysm perhaps more than anything else.

Dr. Frederick T. Lord: The complex of symptoms here is, I should think, fairly typical of aneurysm, which is not a common cause of bleeding. When bleeding does occur with ancurysm it is not ordinarily "out of a clear sky".

There is one case in the autopsy records of interest in this connection. This was a man



A Marked Advance in

oral estrogen therapy

no odor or after-odor

no taste or aftertaste

Now, after years of search . . . a *pure* crystalline salt of the conjugated natural estrogen, estrone.

HOW has this tasteless, odorless therapy shown in clinical trial?..."The facility with which dosage can be regulated . . . and the rapidity with which relief can be obtained on minimal medication are commendable."[1]

SIDE EFFECTS? From a report on 58 standardized menopausal patients . . ."Nausea was extremely uncommon, being observed in only . . . one patient on Sulestrex."[2]

ESTHETIC? "The annoying urinary taste and odor, sometimes found in natural conjugated estrogen, is not present."[3] Make *your* test of SULESTREX—soon. Available in Tablets and Elixir. Abbott

SULESTREX® Piperazine

(Piperazine Estrone Sulfate, Abbott)

1-1678

1. Reich, W.J. et al. (1951), A Recent Advance in Estrogenic Therapy. I. Amer. J. Obst. & Gynec., 62:427, August. 2. Perloff, W. H. (1951), Treatment of the Menopause. II. Amer. J. Obst. & Gynec., 61:670, March. 3. Reich, W. J. et al. (1952), A Recent Advance in Estrogenic Therapy. II. Amer. J. Obst. & Gynec., 64:174, July.

of thirty-seven with cough without expectoration for three years and an abundant hemoptysis three days before entrance. A recurrence of the bleeding was fatal two days after admission. At autopsy a large branch of the pulmonary artery was found to have ruptured into the right primary bronchus through a cicatrix involving the wall of the artery. Other cicatrices in the trachea and the left primary bronchus together with interstitial orchitis suggested syphilis as a cause.

The present case illustrates the importance of x-ray in diagnosis. Without it, and with small amounts of bleeding and a suspicion of tumor, bronchoscopy might be attempted, but with great risk of fatal hemorrhage in consequence of the procedure.

The physical signs are of interest in this case. The same complex of signs is common to bronchial occlusion arising from within and compression from without; i.e., dullness, diminished or absent breathing, voice, whisper and tactile fremitus. If the bronchus is partially occluded, sibilant rales are likely to be present on one side of the chest and may serve to suggest the presence and site of the bronchial occlusion, as is often observed with tumors invading the lumen of a bronchus.

Dr. Holmes: The autopsy findings raise an interesting question in regard to the x-ray film. The bright area in the left lung extends to the base so that we see the outline of the diaphragm. If the entire left lower lobe is dull, with no air in it, it is a little difficult to explain the brightness in the lower part of the chest. I suppose it is due to overlapping of the upper lobe.

Dr. Bradley: There is another possible explanation for that bright area. The appearance of the lower portion of the left lower lobe was different from that of the remaining consolidated areas. There the lung is distended, firm, dark red, and the appearance on gross examination is that of hemorrhagic infiltration rather than of pneumonic consolidation. It may possibly represent a terminal change.

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

Hill-Burton Hospital Construction

Status of all Hill-Burton hospital construction in Arizona at the present time is as follows:

Complete and in Operation: 7 projects at a total cost of $3,340,501.00, including federal contribution of $1,132,516.00, and supplying 246 additional beds.

Under Construction: 5 projects at a total cost of $7,867,531.00, including federal contribution of $2,232,051.00, and designed to supply 599 additional beds.

Approved, but not yet under construction: 2 projects at a total cost of $552,061, including $90,445 federal contribution and designed to supply 64 additional beds.

THE BROWN SCHOOLS
For Exceptional Children

Year-round school, including Summer Camp, for children, tiny tots through teens, with educational and emotional problems. Six separate residence centers, both suburban and ranch, for homogeneous grouping; complete recreational and academic programs. Under the daily supervision of a Certified Psychiatrist. Full time Psychologist and Registered Nurses. Write today for View Book; full details.

BERT P. BROWN
President

PAUL L. WHITE, M.D., F.A.P.A.
Medical Director

P. O. Box 4008-J
AUSTIN, TEXAS

OFFICE FOR RENT

Available September 1st

1200 sq. ft. floor space, asphalt tile throughout, York Refrigeration, central heating, refrigerated ice water, intercommunicating system, private parking lot, lawn service. $250.00 per month.

Inquire 301 W. McDowell Rd.

Phoenix, Arizona

Mothers will thank you





Swallowed Whole



Chewed
Or in Food Or Liquid



Dissolved on Tongue

NEW FLAVORED

CHILDREN'S SIZE

BAYER ASPIRIN

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc.
1450 Broadway, New York 18, N. Y.



- The Best Tasting Aspirin You Can Prescribe.
- The Flavor Remains Stable Down to the Last Tablet in the Bottle.
- 24 Tablet Bottle . . . 2½ gr. each 15¢

2½ gr. ⇨ 1¼ gr.

Grooved Tablets—
Easily Halved.

The PRESIDENT'S *Page*

DOCTOR DRAFT LAW

Of primary interest to all doctors is the enactment of Public Law 84, 83d Congress, signed by the President, June 29, 1953, extending until July 1, 1955, a revised version of the DOCTOR DRAFT LAW. Briefly, provisions of the new law are:

(1) Extend the effective date of the DOCTOR DRAFT LAW until July 1, 1955;

(2) Retain the maximum ages specified in existing law: Registration, age 50; Liability for induction, age 51;

(3) Continue in effect the four priorities established by existing law with the following amendments:

(a) All service performed since September 16, 1940, as an officer or as an enlisted man, with certain exceptions which will be outlined later, will be credited as service. At the present time doctors in priorities 1 and 2 only received credit for service performed "subsequent" to deferment or participation in a Navy V-12 or Army Specialized Training Program during World War II;

(b) The length of service required to qualify for priority 4 for doctors who were deferred or educated at government expense during World War II is reduced from 21 to 17 months. As a result of this provision a substantial number of doctors will be reclassified from priority 2 to priority4;

(c) Establish the following new periods of service for men recalled to active duty or inducted pursuant to the DOCTOR DRAFT LAW:

Previous Service	*New Period of Duty*
9 months or less	24 months
9 to 12 months	21 months
12 to 15 months	18 months
15 to 21 months	18 months

(d) Removes the liability for induction or recall to active duty, except in time of war or national emergency hereafter declared by Congress, for those men in priority 4 who have had 21 months or more of service since September 16, 1940.

(4) Define "active duty" and "Active service" to include:

(a) Full-time duty in the active service of the United States since September 16, 1940, in the Army, Navy, Air Force, Marine Corps, Coast Guard or United States Public Health Service, including reserve components;

(b) Time spent during World War II in work of national importance by conscientious objectors;

(c) Service performed before September 2, 1945, in the Armed Forces of countries which were allies of the United States during World War II; and

(d) Service performed as a physician or dentist by United States citizens employed by the Panama Canal Health Department between Septemper 16, 1940, and September 2, 1945.

(5) Exclude from consideration as "active duty" periods spent in a Navy V-12 or Army Specialized Training Program; in a military internship, residency or senior student program; in military service for the sole purpose of undergoing a physical examination or while engaged in active duty for training entered into after June 29, 1953;

(6) Authorize the appointment of medical officers in grades commensurate with their professional education, experience or ability. This section is intended to provide for uniform treatment with respect to the ranks of all doctors called to active duty irrespective of whether they had previous military service;

(7) Continue until July 1, 1955, the authority to provide the "Special Pay" of $100 per month for doctors in the Armed Forces. This section also extends the class of persons eligible for such pay to include veterinarians;

(8) Authorize the commissioning of non-citizens of the United States as officers in the Armed Forces;

(9) Terminate automatically, upon completion of 12 months or more of service subsequent to September 9, 1950, the reserve commissions of all physicians taken into service by operation of the DOCTOR DRAFT LAW. Upon completion of this same service medical reservists recalled to active duty will be given an opportunity to resign their commission. Such persons, whether registrants or reservists, shall not be liable thereafter for recall or reinduction except in time of war or national emergency hereafter declared by the Congress;

(10) Re-enact the present provisions of law which permit the deferment of those individuals who are essential to the national health, safety and interest;

(11) Authorize the national, state and local medical advisory committees to the Selective Service System, in addition to their present authority, to make recommendations with reference to the deferment of (a) registrants engaged in residency training, (b) those serving on faculties of medical and certain other schools and (c) those engaged in essential laboratory and clinical research;

(12) Extend until July 1, 1955, the authority of the President to recall medical reservists to active duty involuntarily;

(13) Be retroactive in effect. Those men already in uniform who would have benefited from the new changes in the law will, upon filing an application, be eligible for release from service as soon as possible and in no event later than 90 days after the effective date of the Act (June 29, 1953).

Edward M. Hayden, M.D.,
President

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 JULY, 1953 NO. 7

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

GRIEVANCE COMMITTEES

Three years have elapsed since the establishment of Grievance Committees in Arizona. The experience of these committees is of interest to the profession throughout the state.

As far as Maricopa County is concerned no instance of litigation against a doctor has followed action on grievances, which indicates that these committees tend to protect the doctor. This would not have been the case had there been any serious deficiencies in the treatments rendered patients. The primary purpose of these committees is to safeguard the public, and should serious overchange occur, or serious deviation from accepted standards of treatment occur, or should the doctor be unwilling to make adequate adjustment, the committee can and will aid the patient to a correct solution of the difficulty even to furnishing expert testimony in court if needed.

The committee has had complete co-operation of the medical profession, and in no instance has there been any need to utilize more than reason with our doctors. This is probably due to the painstaking studies made of each grievance, and the general fairness of the decisions rendered.

Most complaints are concerned with charges for service, and in most cases the complaint has been made to the committee without first approaching the doctor for discussion of the fee. Due to this, at least in Maricopa County in the future, no grievance will be considered by the committee concerning charges, until the patient has had an "across the table" discussion of the fees for service, and been unable to obtain satisfactory settlement. It is felt that by understanding the nature of the work done and charges made, that most fee disputes can thus be obviated; also, the patient can make known elements of hardship which the doctor might not be aware of, by this means.

Certain general deductions can be made concerning charges from the experience of these committees. Too much itemization of charges may lead to complaint, and strangely enough more complaints arise over medical than over surgical services. The method of the surgeon might be utilized then in order to reduce dissatisfaction. In other words a statement might read "for the treatment of coronary occlusion," or "of lobar pneumonia" or "of meningitis" such and such a charge, rather than itemizing for each hospital, office or residence visit. Certainly prolonged attendance should be mentioned if charge has been made for it, and probably separate laboratory charges should be designated. In

other words focus on the serious condition treated and your responsibility therein might well justify the charge, when a fee for an individual call might seem excessive to the patient. It is true that insurance requirements may make this inadvisable.

Some complaints arise from failure of a physician to inform consultants of patients financial condition. If a consultant charges too low a fee in relation to the attending physicians, the attending physicians fee maybe placed in jeopardy even though entirely proper.

Some grievances arise because doctors do not take time to bring to their patients attention the amount of work done and the value of the services. Certainly a physician's services are the equal of that of the carpenter, bricklayer, or plumber—many disputes would not arise if these facts were shown the patient.

Several complaints have resulted when a patient refused consultation recommended by the attending physician and a not entirely satisfactory result ensued. In these instances the doctor is probably better off to refuse further care of the case, realizing an unsatisfactory progress had been made, rather than go on. The committees have emphatically scolded these patients for their refusal to accept consultation, and pointed out to them that they have themselves to blame only. Some complaints have been found due to failure of patient to follow instructions, and these patients have been informed of their own failures as the cause.

Obviously women should never be examined without a nurse or third person in attendance. Committees are powerless to protect doctors from malicious statements unless the doctor guards himself. A jury would likely be glad to bring a verdict in behalf of an attractive female, if it came to the doctors word against the patients.

Partnership agreements should be in every detail in writing. Grievances due to this lack of foresight have been processed.

The committees cannot countenance failure of the attending physician to make requested call on the death of his patient, no matter what the hour. The physician owes this to the deceased's family if his presence has been requested.

Improper evaluating of conditions over the phone has led to grievances. Patients of long standing have recorded grievances when a doctor has failed to make a requested call. If a doctor feels powerless to help these patients of long standing further, he should either dismiss himself from further responsibility, or obtain a substitute for himself if he cannot make the call. If conditions come to a standstill often a suggested consultation is a way out of a dilemma.

In General the Grievance Committees have exerted a powerful influence in behalf of the medical profession. The mere presence of a grievance committee will tend to serve as a check rein on the occasional doctor who might be tempted to deviate from accepted practices inasmuch as the committee will help any mistreated patient. Again the committees protect the doctor whose work is conscientous, honest and long acceptable standards, and by this they serve as a powerful deterent against the institution of legal action without reasonable cause.

LETTER TO THE EDITOR

SOCIETY FOR THE BRAIN INJURED FORMED

Samuel R. Joseph, M.D.
Phoenix, Arizona

Recently a letter of application was sent to the Arizona Medical Society requesting sponsorship of The Arizona Chapter, National Society for The Brain Injured. The need for such an agency is apparent when we realize the great number of Brain Injured who are at present neglected and forgotten by society.

The organization was founded in California by professional people, interested parents and businessmen. There are two chapters in California, one in Arizona, Texas, Illinois and New York. It is hoped that eventually there will be a chapter in each of the forty-eight states.

The aims of the organization are to establish a model school; to establish a clinic for Brain Injured; to promote a parent guidance program; to foster and aid research; and to give assistance to disaster areas such as might occur where an epidemic of encephalitis and meningitis may break out.

The group considered would be the ambulatory Brain Injured such as epileptics, brain injury from birth, brain injury from infectious diseases such as meningitis and encephalitis, and traumatic brain injuries. This includes a large number of our children and adults who are not cared for by such agencies as the Cerebral Palsy

and Crippled Children's organizations, who include spastics.

It is estimated that 60% of these children can be rehabilitated and trained to lead near normal, productive lives. Our schools are not equipped to accept these children who require highly specialized training. There are few text books written on how to teach them and there are few trained personnel to train them. These children have long been forgotten.

Our organization hopes to be of service to the Brain Injured, to the parents and relatives of the Brain Injured and to the physicians who are confronted with this problem. All of us, as physicians, have had the parents of Brain Injured seek us for advice. In the past, since there are so few facilities, all we have been able to tell them is,—"Put them in an institution or take them home and forget about them." The physicians must help these parents to adjust to their problem. The medical specialist must recognize the need for this understanding. Thousands of parents each year face the difficulties involved in rearing a Brain Injured child. It is estimated that these are 1,000 of these unfortunates for each 100,000 population.

You, as a physician, must have keenly felt your inability to help the parents of a Brain Injured when they come to you for advice. Our knowledge is limited, the agencies set up for us to recommend these parents to are few. Our profession has a duty to these people. Until now, as a group, we have let them down by not having anything encouraging to say, nor very much constructive to suggest. Only the parent of a Brain Injured can know the deep hopelessness and despair when their friend and family physician or pediatrician tells them to "Send the child away and forget about it. Nothing can be done." But something can be done and will be done. You will soon be in a position, with the help of the Society For The Brain Injured, to refer these parents to an agency who can help you diagnostically, help you ease these parents over the shock and through a period of adjustment following the knowledge that their child is Brain Injured; as well as help you treat, rehabilitate and teach these children. It is a tough decision for a physician to make, whether to tell the parents that a child is Mongoloid or that the child's injury or disease has resulted in mental retardation. We hesitate to tell the parents only because we had no hope ourselves and had no place to tell these parents to take their child. Now there is hope for many.

Our organization seeks to give hope to the physician, the child and parents by the fulfillment of our aim. We physicians must recognize the need for this organization and cooperate by recognizing and sponsoring it. Recently you received a letter asking for a list of those you have among your patients who are Brain Injured. We offer our help to you with these patients, but we must know who they are and how many we have in this State. We need to have some idea of how many and what types of cases there are before we will be given Clinic time and space in one of our hospitals. Those of you who have not sent a list of names before this please address it to:

Samuel R. Joseph, M.D.
711 West Thomas Road
Phoenix, Arizona

The Arizona Chapter of the National Society for Brain Injured announces to the Arizona Medical Society that the National Society's home office at Los Angeles has established a special ten week training course for Brain Injured children from 7 to 12 years of age. Any doctor who receives this message may recommend a child for this special program. The school will be under the direction of Miss Jean Owen, who has been trained by Dr. Strauss of the Cove Schools and by Dr. Parmalee in Chicago. This remedial program will be for children diagnosed as brain injured but teachable. Because of the physical nature of the school facility to be used, brain injured children must be ambulatory and have not more than 15% orthopedic handicap. The local Chapter will sponsor one scholarship, in whole or in part. For further information write to the National Society for Brain Injured, Arizona Chapter, 3007 North 9th Avenue, Phoenix, Arizona.

TRUSSES — SURGICAL SUPPORTS

GROVE'S

Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

Are you up on DISKOGRAPHY? The method has nothing to do with the distribution of flying saucers, but is an orthopedic technic of Swedish origin (Lindblom, 1948). . . . An intervertebral disk seems an unlikely place to put a needle and to inject a radiopaque fluid, but that is the objective. . . . The diagnostic data are obtained from the amount of pressure needed to inject, the presence of sciatic pain at injection, and the x-ray appearance.

TRICHINOSIS is not commonly diagnosed, yet there are said to be 350,000 new infections in the U. S. each year, for a total of 25,000,000. . . . Fifty-four larvae per gram of diaphragm muscle is the level at which symptoms may be produced. About 16,000 new cases should have symptoms (4.5%), but only an average of 336 cases per year are reported. . . . About 1.5% of 60,000,000 hogs slaughtered each year are infected.

A new idea has just been suggested for control of trichinosis,—all pork could be briefly exposed to ATOMIC RADIATION. The trichina would not be killed, but their reproduction would be prevented. So far it is a 'good' theory, since it is logical and has not been injured by trial.

It is amazing how one NEW DRUG happens to be handled by a man with a quiet type of personality and the course of its use is smooth and benign. Another new drug exists in the midst of a cops-and-robbers atmosphere, investigations (mystery, acrimony, etc., from the very start. . . . Look how many people in South and North America have suddenly gone off their course after coming in contact with Krebiozen. Dr. Ivy always liked to tilt at a windmill, liked to evangelize a bit, was a bit stubborn, but he and the drug together seemed to produce a fission like atomic energy.

The problem of REFUSE DISPOSAL isn't very well organized in the minds of most people, even of us medicals. A sanitation expert, however, can break it down into a half dozen aspects as fast as he can talk,—flies; rodents; air pollution; water pollution transportation nuisance; effect on topography; and sub-heads for all of the major items on the list.

—TIME Magazine reports the combined Arizona and USPHS investigation of CANCER AMONG THE NAVAJOS. . . . Dr. Clarence Salsbury noted that the Indians (of which he once took care) had less cancer than the nearby white people (of which he now takes care). In 23 years he never saw a breast cancer in Indian women. . . . We have also received a clipping of the report which Dr. Salsbury made in California to the western branch of a national hygiene society on the same subject. . . . Now Dr. S. can determine whether it is immunity or observation.

Have you X-RAYED ANY STAMPS lately? Philately, that is. . . . The General Electric monthly publication describes an exhibit by two modern stamp experts, in which their several methods have prevented fraud by showing watermarks, repairs, etc. Very complicated technique, but the stamps do not have to be removed from the valuable covers, and it makes a stamp-collector very scientific.

It is also fairly common knowledge that metal structures can be examined and diagnosed by x-raying. . . . Most people, however, would balk at a story of PLUMBERS USING STETHESCOPES to find water-pipe leaks, but we have a picture from a hospital journal showing a portly engineer in a Chicago hospital listening intently to a pipe with his needle-pointed 'bell'. A serious expression is balanced by a turned-up beak on his cap.

A couple of years ago an interesting theory was described in a paragraph in this column. LYSOZYME was then a recently described enzyme present in tears, the intestinal tract, etc. It was considered a possible cause of ulceration in the tract, especially in the colon. . . . Not so, say Meadows and Levison. They have found no mucolytic action, no destruction of the protective coating. Lysozyme may be an index of inflammation, however. . . . The people who once went 'Thru The Intestine With Gun and Camera' now have lysozyme as a new estimate of the local flora.

'BACKWOODS RESEARCH' is not so common, not so productive, not easy to justify, and not always strictly honest. . . . Sometimes the end justifies the means. If you have a disease for which there is no effective therapy (such as disseminated coccidioidomycosis), and a man who sees a great many hopeless cases (such as Dr. Robert Cohen of Tulare County, Calif.), it would seem that almost any 'possible' method would be worth while. . . . After going thru nearly twenty drugs in the past few years, and being hopeful about each one, he is now hopeful about ethyl vanillate.

About thirty companies have been writing most of the MAL-PRACTICE INSURANCE in the past. Their rates were highly variable, and hard to justify. . . . They are now joining together to write a standard policy and premium schedule. . . . The mutual companies and the companies not affiliated with the new plan will not be affected—and their rates will not take the small but inevitable jump which seems to follow organization.

Hyde and Hyde of Los Angeles have described 120 consecutive cases of nontuberculous, nontraumatic benign SPONTANEOUS PNEUMOTHORAX. They recommend bedrest only. . . . Their reason for expectant therapy is that only 19% recur, and more than 2 recurrences are rare. . . . Some people would want more action, but the series seems worth considering.

It was interesting to see a picture (in A. P. H. News) of Dr. Salsbury conferring with Dr. Albert Russell, new Arizona Director of TB Control. They were seeming to study the Citizens' Committee report, which stresses the need for about 1,000 additional beds for the care of active cases. . . . They could also be speculating on how to obtain the 150 beds which 'got off the hook' a few years ago. . . . We knew a doctor in 1945 whose solution of the problem would just fit the current needs,—A 1,000-bed TB hospital would be built about 3 miles outside the center of one of the Southern Arizona desert cities (not beginning with a 'P'). The hospital would be multi-storied, well-designed, and modern. It would take patients in three categories,—private; state-county; and federal. The basic care would be of the same high level for all, plus frills when paid for. There would be a resident staff, a visiting staff, and a medical control board. (The ice is thin at that point). A law would require that all active TB patients in the state be hospitalized, with some certain exceptions. The families could live nearby the hospital. The financing would be arranged by a combination of federal-state-county-private funds. People could come to Arizona for tuberculosis care, provided that they conformed to the law. They could live in Arizona after recovering. . . . This was a REAL good dream, but it might be more like a nightmare to some people.

Several years ago we surveyed the local and national attitudes towards use of ANTI-RABIES VACCINE in humans. There was great uncertainty then, with a tendency to feel that it had to be used because of demand rather than value. . . . A recent survey in New York City concludes that the danger from rabies is greater than the danger from vaccine side-effects. . . . The use of vaccine, however, should be restricted to those BITTEN. Contact with, or a scratch by, a rabid animal is NOT a good enough reason for treatment. . . . Now, who will believe it? . . . Also, when are those 'improved' vaccines going to be reported?

La Alianza Panamericana De Doctoras En Medicina Pan American Medical Women's Alliance, Inc.

IV Congress—Beekman Towers Hotel, First Avenue and 49th Street, New York City, September 24 through October 1, 1953, Dr. Ina A. Marsh, 140 Linwood Avenue, Buffalo 9, New York, Registration Chairman.




Suite for M.D. or Surgical Specialist — Modern, 5 rooms, refrigerated cooling.
Available Now. $200 per month on lease basis.

See

HOWARD J. OHL, M.D., A.A.G.P.

25 W. McDowell Rd. — Phoenix, Arizona

SOMETIMES WE GET A LITTLE BIT FRANTIC!

Voices pick on the medical profession, other voices defend the medical profession. Voices inside the profession "admonish"; voices outside the profession "threaten."

When you get right down to the anatomical diagnosis, all the voices seem to be talking about the same thing . . . MONEY . . . the patient's money.

What makes us frantic is that our own BUDGET PLAN FOR HEALTH is the answer to most of the problem.

If the doctor "talks over his fees", as admonished, he can offer the BUDGET PLAN FOR HEALTH as a solution to the patient's financial problem.

Patients who pay for professional services out of income are usually happy patients who are not interested in threats to the profession.

More and more physicians are recognizing the BUDGET PLAN FOR HEALTH as a practical public relations tool that also helps the patient. If you re not making the most of this invaluable professional service, you may be doing an injustice to yourself, your profession, and your patients who need it.

It will take only a few minutes to get the full story of Medical & Dental BUDGET PLAN FOR HEALTH and how it fits into your practice. In Phoenix, phone AL 8-7758, and in Tucson phone 3-5391.

MEDICAL & DENTAL
Finance Bureau

Home Office: First St. & Willetta
Downtown: 407 Professional Bldg.
Tucson: 706 Valley Nat'l. Bldg.

An Ethical Professional Service For Your Patients
Founded 1936

AMERICAN MEDICAL ASSOCIATION ANNUAL MEETING REPORT

Your Executive Secretary was privileged to attend the 102nd annual meeting of the American Medical Association held in New York City, June 1-5, 1953. As anticipated, it was the largest gathering in the history of the medical profession. Registration exceeded 18,000 member physicians, surpassing the record established in 1947 at Atlantic City, of 15,667, the occasion of the Association's centennial celebration. Approximately 20,000 additional attendance was likewise recorded, comprising medical students, medical society executives, wives of physicians and exhibitors' representatives.

The scientific program presented at general sessions and sectional group meetings held at the Commodore, Biltmore, New Yorker, Waldorf-Astoria, Belmont Plaza, Astor and Roosevelt Hotels, in addition to the Town Hall, included the presentation of approximately 400 papers covering every phase of medical research and therapy. The Grand Central Palace was the scene of scientific exhibits, the entire fourth floor being devoted to approximately 260, and three additional floors were occupied by over 375 drug, medical equipment and pharmaceutical manufacturers, food processors, medical book publishers and other commercial organizations comprising the technical exposition. About twenty-five motion picture films showing the latest techniques in the treatment of diseases and for the first time, televised surgical operations in color were shown.

The Conference of Presidents and Other Officers of State Medical Associations held its ninth annual meeting at the Waldorf, Sunday, May 31, attended by your Executive Secretary. Louis M. Orr, M.D., of Orlando, Florida, past-president of the Florida Medical Association, discussed "Medicine at the Crossroads—1933-1953"; Rev. Frank W. Price, D.D., of Richmond, Virginia, spoke on "Asia is on Fire—So What?"; Carroll M. Shanks of Newark, New Jersey, president of the Prudential Insurance Company of America, discussed "Voluntary Health Insurance—an Appraisal and a Look Ahead"; and the Honorable John Marshall Butler of Baltimore, Maryland, Senior United States Senator from the State of Maryland, spoke on "The Constitution and Treaty-Making Powers." The Medical Society Executives Conference held at Hotel Belmont Plaza, June 1, concluded its seventh annual meeting. This is a workshop for national, state and local medical society executives, and another educational program was conducted. Your Executive Secretary was a member of the Executive Committee during the year 1952-53.

The House of Delegates of the AMA met for the first time Monday morning, June 1, followed by several additional sessions and Reference Committee meetings. These meetings were marred only by the absence of our delegate to AMA, Dr. Jesse D. Hamer, who rushed to the bedside of his wife, seriously injured in an automobile accident near Aurora, Missouri, who was enroute to Springfield. Mrs. Clarice Hamer, national representative of this state to the Woman's Auxiliary, had planned to meet Dr. Hamer in Chicago, and together intended to fly to New York to attend their respective meetings. I am more than happy to report that it has been possible to move Mrs. Hamer to Phoenix, during the past week and at this writing, is progressing satisfactorily. I know we all wish her a speedy recovery.

Dr. Edward J. McCormick of Toledo, Ohio, President-Elect, was installed President of the AMA at a fitting inaugural ceremony in Hotel Commodore, Tuesday evening, June 2, succeeding Louis H. Bauer, M.D., of Hemstead, New York. On Thursday afternoon, June 4, Walter B. Martin, M.D., of Norfolk, Virginia, was elected President-Elect; Carl H. Gellenthein, M.D., of Valmora, New Mexico, Vice President; and re-elected were George F. Lull, M.D., of Chicago, Secretary; J. J. Moore, M.D., of Chicago, Treasurer; James R. Reuling, M.D., of Bayside, New York, Speaker, and E. Vincent Askey, M.D., of Los Angeles, Vice Speaker. Gunnar Gunderson, M.D., of La Crosse, Wisconsin, and Edwin S. Hamilton, M.D., of Kankakee, Illinois, were re-elected members to the Board of Trustees, and Julian P. Price, M.D., of Florence, South Carolina, for the unexpired term to fill the vacancy created by the elevation of Dr. Martin to President-Elect. Elected to the Judicial Council was George A. Woodhouse, M.D., of Pleasant Hill, Ohio; to the Council on Medical Education and Hospitals, Victor Johnson, M.D., of Rochester, Minnesota, and L. S. McKittrick, M.D., of Boston, Massachusetts, both re-elected; to the Council on Scientific Assembly, Hans H. Reese, M.D., Madison, Wisconsin, and Charles H. Phifer, M.D., of Chicago, Illinois; to Council on Medical Service, Louis M. Orr II, M.D., of Orlando, Flor-

ida, and Robert B. Homan, Jr., M.D., of El Paso, Texas; and to the Council on Constitution and By-Laws, Stanley H. Osborn, M.D., of Hartford, Connecticut, re-elected.

Guest speakers during the House sessions were Mrs. Oveta Culp Hobby, United States Secretary of Health, Education and Welfare, who stated any system of socialized medicine threatens democracy. Socialized medicine would be expensive "for when the government provides a service, the cost of a round-trip ticket for the dollar from the taxpayer to the government back to the taxpayer must be paid"; Mrs. Ivy B. Priest, United States Treasurer, who urged support of the Administration, and Lewis K. Gough of California, National American Legion Commander, who urged continued free care for veterans with non-service ailments. He stated: "To turn the deserving veterans out of Veterans Administration facilities would only create a new social problem."

Dr. Alfred Blalock of Baltimore, Maryland, was awarded the Distinguished Service Award of the AMA (the sixteenth since 1938), for his outstanding work in vascular surgery, especially for his part in the development of the so-called "blue baby" operation.

The House of Delegates unanimously adopted a recommendation of its Reference Committee on Insurance and Medical Service that, except in cases involving tuberculosis or psychiatric or neurologic disorders, responsibility for the care of veterans with disabilities or diseases of non-service connected origin should be returned to the individual and to the local community.

In taking this action, the House reaffirmed and adopted the following recommendation originally presented at the Denver meeting last December by the Special Committee on Federal Medical Services:

"Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories:

(a) Veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated, and

(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the expenses of necessary hospitalization.

Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs."

The reference committee report adopted by the House expressed complete accord with the present program of hospital and medical care for veterans with service-connected disabilities, and also included this statement:

"It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever-increasing cost of such a program is a proper burden to impose on the taxpayers of the country. A consideration of this problem must of course be predicated upon a concern for the health of the entire population and not just a particular segment."

Eleven resolutions dealing with publicity regarding unethical conduct of physicians were brought before the House as a result of recent newspaper and magazine articles reporting statements attributed to an official spokesman of an allied medical organization. The House adopted a committee report which recommended no action on the eleven resolutions but which reaffirmed the supremacy of the AMA code of ethics and urged that the Judicial Council study suggested revisions concerning methods of billing.

"The Principles of Medical Ethics as formulated, interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession," the reference committee report said. "Any statement relating to ethical matters by other organizations within the general profession of medicine advances views of only a particular group and is without official sanction of the entire profession as rep-

resented by the American Medical Association."

Condemning generalized statements regarding the ethics of physicians, the report went on to say:

"Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated. This highlights the fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy.

The reference committee believes that the members of the House of Delegates have demonstrated their devotion over the years to the principles of American democracy. This devotion includes the right of free speech. With this, the Committee agrees unqualifiedly.

Broad generalizations, ill-advised and poorly prepared statements that often fail to convey the intended meaning are most unfortunate and are to be deplored. Destructive critical comments serve no useful purpose. Your committee has the utmost confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee."

The report also urged that the American Medical Association continue to inform its members and the public of its stand on matters pertaining to abuses and evils in the practice of medicine.

Most controversial issue brought before the House at the New York meeting proved to be the question of immediate or deferred action on the report of the Committee for the Study of Relations Between Osteopathy and Medicine. The House, after two hours of vigorous, spirited debate, adopted the majority report of the Reference Committee on Miscellaneous Business, thereby postponing action until the June 1954, meeting and allowing further study by the delegates and the state associations.

The recommendations of the Committee for the Study of Relations Between Osteopathy and Medicine were as follows:

"1. That the House of Delegates declare that so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of "cultist" healing.

2. That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in the undergraduate and postgraduate education of doctors of osteopathy.

3. That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility.

4. That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body."

A minority report of the reference committee urged approval and adoption of those recommendations at the New York meeting. The majority report, which ultimately won out, included the following recommendations by the Board of Trustees:

"Because of the length of the report and the controversial nature of the subject, the Board feels that the House should have adequate time for its study and that the state associations should have opportunity to express their opinions.

Therefore, it is recommended that the Committee be continued, but that action on the report be deferred until the June 1954, session. It is suggested that at that time the House be prepared to answer the following questions:

1. Should modern osteopathy be classified as 'cultist' healing?

2. Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?

3. Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?"

Five resolutions came before the House with regard to the Essentials of an Approved Internship, which were adopted at the December 1952, meeting. The Reference Committee on Medical Education and Hospitals recommended a substitute resolution which was adopted by the House after considerable discussion. The action abolishes the rule whereby approval may be withdrawn from an internship program which for two consecutive years fails to obtain at least

two-thirds of its slated complement of interns. The resolution also calls for further study of the Essentials by a committee appointed by the Speaker of the House, at least half of whom are doctors in private practice not connected with medical schools or affiliated hospitals.

Member registrants from Arizona to June 4, were:

CHANDLER–Charles L. von Pohle, M.D.

PHOENIX–Joseph Bank, M.D., Joseph C. Ehrlich, M.D., Robert S. Flinn, M.D., Dudley J. Fournier, M.D., Joseph S. Lentz, M.D., Hilton J. McKeown, M.D., Bernard L. Melton, M.D., Howell S. Randolph, M.D., George K. Rogers, M.D.

TUCSON–Harriet S. Baritell, M.D., John K. Bennett, M.D., Benson Bloom, M.D., George L. Dixon, M.D., Clyde E. Flood, M.D., W. Ray Hewitt, M.D., Donald F. Hill, M.D., W. Paul Holbrook, M.D., Hugh H. McFadyne, M.D., Otis B. Miller, M.D., Raymond F. Oyler, M.D., Seymour I. Shapiro, M.D., Selig A. Shevin, M.D., Henry J. Stanford, M.D., Alden B. Thompson, M.D., Marguerite S. Williams, M.D., Elmer E. Yeoman, M.D.

YUMA–Robert E. Rider, M.D.

Respectfully submitted,
Robert Carpenter,
Executive Secretary

ARIZONA STATE BOARD OF MEDICAL EXAMINERS

Governor Howard Pyle appointed Orin J. Farness, M.D., of Tucson, Maurice R. Richter, M.D., of Phoenix, and Harry T. Southworth, M.D., of Prescott, members of the Arizona State Board of Medical Examiners, each for a term of three years, effective July 1, 1953. Carl H. Gans, M.D., of Morenci, and Abe I. Podolsky, M.D., of Yuma, incumbents, complete the membership. At a recent organizational meeting Dr. Podolsky was elected President; Dr. Southworth, First Vice President; Dr. Gans, Second Vice President and Dr. Richter, Secretary-Treasurer, for the ensuing fiscal year. Mr. Robert Carpenter was appointed Executive Secretary. The officers of the Board are presently located in the Security Building, Phoenix, Arizona.

Park Central Medical Building

Phoenix

Five Fifty West Thomas Road

See for yourself the many features offered the Medical profession in a building designed exclusively for professional occupancy.

Your inspection invited—For appointment telephone AMherst 6-8416

E. A. Hamilton, Designer and Manager

A Limited Amount of Space Available

Date of occupancy June 1st, 1953

Next Stop, Phoenix

Enjoy a delightful SUNSHINE WEEKEND — 3 full days — Friday through Sunday — in the new Patio Addition for the refreshing sum of $20 Single, $25 Double. This price includes an actual Cash Credit for dining and dancing in The CONCHO ROOM. — $4 Single, $6 Double. The three days and the Cash Credit all for the price listed above. Offer expires October 1st.



Arizona Pharmaceutical Page

"CAVEAT EMPTOR"

ACCORDING TO LEGAL WRITINGS, THE RULE OF CAVEAT EMPTOR IS THAT "THE PURCHASER MUST BEWARE," AND SIGNIFIES IT IS THE DUTY OF THE BUYER TO PROTECT HIMSELF BY BEING ON HIS GUARD IN THE PURCHASE OF CHATTELS, ESPECIALLY BY MAKING AN EXAMINATION TO ASCERTAIN THE KIND AND QUALITY OF GOODS HE IS PURCHASING.

THE RULE OF CAVEAT EMPTOR, HOWEVER, HAS NO APPLICATION TO THE SALE OF DRUGS OR POISONS *AT WHOLESALE OR RETAIL,* BECAUSE THE *ORDINARY PURCHASER* OF A DRUG OR POISON CANNOT IDENTIFY, WITH PRECISION, THE ARTICLE CALLED FOR. THIS AMOUNTS TO SAYING THAT *THERE IS A WARRANTY BY THE PHARMACIST THAT THE DRUG DELIVERED IS THE ONE CALLED FOR BY THE CUSTOMER.*

NOW, IF YOU WILL NOTE THE USE OF THE WORD ORDINARY, WE WANT TO CALL YOUR ATTENTION TO A RECENT RULING, EMINATING FROM THE FEDERAL TRADE COMMISSION. IT FOLLOWS:

"ADVERTISING TO PHYSICIANS WAS CAREFULLY DISTINGUISHED FROM CONSUMER ADVERTISING IN FEDERAL TRADE COMMISSION EXAMINER KOLB'S INITIAL DECISION ON FTC'S COMPLAINT V. SPENCER BREAST SUPPORTS (NO. 5995). KOLB FOUND SPENCER'S ADVERTISEMENT CLAIMS MISLEADING, AS DISSEMINATED TO THE CONSUMING PUBLIC, BUT ADDED THAT *'NO ADVERTISEMENT OF RESPONDENT'S DEVICE IS DEEMED TO BE FALSE IF IT IS DISSEMINATED ONLY TO MEMBERS OF THE MEDICAL PROFESSION* AND CONTAINS NO FALSE REPRESENTATION OF A MATERIAL FACT.' THE FTC LAW IN DEFINING "FALSE ADVERTISEMENT" SPECIFICALLY EXEMPTS *DRUG* ADS SENT ONLY TO PHYSICIANS, IF THEY

(1) CONTAIN NO FALSE REPRESENTATIONS OF A MATERIAL FACT

(2) IF THEY INCLUDE QUANTATIVE FORMULAS.

NO CASES HAVE BEEN MADE AGAINST PURELY PROFESSIONAL DRUG ADVERTISING SINCE ENACTMENT OF THIS LAW IN 1938. THE FTC EXAMINER STATED THAT "SPENCER SUPPORTS HAVE NO THERAPEUTIC VALUE FOR DISEASES OR BODY CONDITIONS BEYOND POSSIBLE TEMPORARY BENEFITS IN SOME CASES, WHILE ACTUALLY BEING WORN. HOWEVER HE ACKNOWLEDGED THAT: "IN A SUBSTANTIAL NUMBER OF CASES, PHYSICIANS PRESCRIBE SPENCER SUPPORTS FOR THE BACK, BREASTS OR ABDOMEN AS AN ADJUNCT IN THE TREATMENT OR THE ALLEVIATION OF SYMPTOMS OF VARIOUS DISEASES OF THE BODY, OR AS A PREVENTIVE MEASURE, PARTICULARLY IN CASES OF FAULTY POSTURE." KOLB'S *PROPOSED ORDER WOULD SHARPLY CURB 22 ALLEGED THERAPEUTIC CLAIMS FOR THE DEVICES IN ADS TO THE "CONSUMING PUBLIC"*, AS DISTINGUISHED FROM THE MEDICAL PROFESSION. NO LIMITATION ON ADS TO PHYSICIANS WAS PROPOSED."

UNFORTUNATELY PHYSICIANS ARE PLACED IN A REALLY PRECARIOUS POSITION WHEN PURCHASING DRUGS. ANY FIRM MAY MAKE ANY CLAIM THEY PLEASE FOR THEIR PRODUCTS AND BE CLEARLY WITHIN THE RULING ABOVE. PHARMACISTS, ON THE OTHER HAND, ARE CHARGED WITH EXERCISING THE HIGHEST DEGREE OF CARE AND SKILL IN THE DISPENSING OF DRUGS AND, IN MANY COURT CASES, ARE HELD TO IMPLIEDLY WARRANT THE DRUGS THEY HANDLE TO CONFORM TO THE CLAIMS MADE FOR THEM.

A PHYSICIAN, IN ORDER TO BE SAFE FROM THE EXPLOITATION OF QUESTIONABLE MANUFACTURERS AND DISTRIBUTORS OF DRUGS, SHOULD CONSULT WITH HIS PHARMIST AND THUS ELIMINATE THE CAVEAT EMPTOR RULE IN HIS PURCHASES.

EFFECTIVE JULY 15, 1953

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of
THE ARIZONA MEDICAL ASSOCIATION, INC.

Became Operative

NON-MEDICAL ENROLLMENT ENDS JULY 31, 1953

For additional information and official application contact
SIMIS INSURANCE SERVICE AGENCY
State Representatives
NATIONAL CASUALTY COMPANY
DWIGHT McCLURE GEORGE B. LITTLEFIELD W. J. WINGAR
Telephone ALpine 3-1185 407 Luhrs Building, Phoenix
PAUL H. JONES INSURANCE AGENCY
Pima County Representative
617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.
We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.
ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES
Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.
333 N. 7th Ave. — Phoenix, Arizona
ALpine 3-5175

ANNOUNCEMENT
ARIZONA ASSOCIATION OF NURSING HOMES

IN BEHALF OF THE PUBLIC AND THE MEDICAL PROFESSION, THE "ARIZONA MEDICINE" TAKES THIS OPPORTUNITY OF WELCOMING THE ARIZONA ASSOCIATION OF NURSING HOMES INTO PUBLIC SERVICE. THIS ORGANIZATION WAS FORMED APRIL 13, 1953, IN PHOENIX. IT IS THE A.A.N.H.'S DESIRE TO CREATE AND MAINTAIN THE HIGEST POSSIBLE STANDARDS.

IN SERVING THE PUBLIC, AS AN ADJUNCT TO THE FIELD OF MEDICINE, IT WAS FELT THAT INDIVIDUAL OWNERS OF NURSING HOMES SHOULD COME TOGETHER IN ORDER TO ESTABLISH POLICIES AND STANDARDS WHICH WOULD BE A CREDIT TO ARIZONA.

THIS ORGANIZATION WILL WELCOME INTO ITS MEMBERSHIP ALL ARIZONA NURSING HOMES AND SIMILAR INSTITUTIONS.

A GOOD NURSING HOME IS A REAL ASSET TO OUR CIVILIZATION. DIRECT ALL CORRESPONDENCE TO:

EVELYN DODD, SECRETARY
ARIZONA ASSOCIATION OF NURSING HOMES
1608 EAST MEADOWBROOK AVENUE
PHOENIX, ARIZONA

Woman's AUXILIARY



Mrs. William Schoffman
Phoenix, Arizona

PRESIDENT'S REPORT ANNUAL MEETING 1953

Here, there and everywhere people are reaching toward ideals. It does not follow that these ideals are anything more than visionary in many instances. But, our ideals can be more realistic.

Only *first* we need to believe in our cause. Is the Medical Auxiliary a worthy venture? Is it right that we extend the aims of the Medical profession or cultivate friendliness and understanding among physician's families? Have we as an organization done anything to justify our existence? The answer to each question is yes and because it is realize and remember that the world is really depending upon us far more than we know.

We must have faith in our individual ability to help carry our own work forward. There is no assurance that every year will bring about startling innovations. However, the need remains to stabilize the good ideas of last year, by this year's effort and at least hold the line for next years workers. Even such a year is not without excitement.

Thirdly let us deserve an "E" for effort in the way we prove our belief in each other. Just as yeast works quietly in leavening bread, so an Arizona negro woman, a physician's wife, proved her belief in this auxiliary. She was among the very first women in the 1952-1953 season to become members in good standing. Though nothing was ever asked of her and nothing has since been offered, she did what she could and made a most significant point.

Last year we worked to gain a new President for these United States, the Medical group as diligently as any other. Was it because of his handsome appearance or the consideration he unfailingly shows his wife? In small degree yes, but in great degree we backed Mr. Eisenhower because of what his mind, his heart and his conscience stand for. Having voted him into office we are obliged and privileged to help him change the world, for the betterment of mankind. Such is his ideal.

Immediately new work is pointed out for this group in the months ahead. Our Legislative post assumes different proportions since we tried our hand at politics. We realize too that now we must stop talking about and actually begin to do something about Civil Defense. Ours is the home front, are we ready to protect it?

Actually we know what to do about most of our problems, personal and collective, but we don't use that knowledge. We could for instance, improve our personal finances by budgeting, but we don't budget; We could improve our health by dieting, but we don't diet; We could improve our careers by studying, but we don't study. Thinking is too hard. Information is piled high around us but we don't use it. There is no law against it however.

Your New President, Mrs. Enfield, is ready, willing and able to carry out the trust you have placed in her hands but she will be the first to acknowledge that the success of this organization, as any other, is in direct proportion to the thinking and active participation of the members and the potential members.

The reports of Officers and Committee Chairmen, on the varied program we sponsor, have been interesting.

Tomorrow the Presidents of our Seven organized counties will give contrasting and indivi-

dual methods of handling this program as well as local needs.

You will hear what money makers are Yavapai members; You will find what spenders Graham County harbors and just how much the mean 'no socialized medicine'. Though discouraged and with just cause — since the stork seems to have taken permanent residence in Gila County —hear what belief in each other, a little encouragement from state officers did for this group. You won't hear it from their report but, you should know that Pinal County, our baby, is also our most independent county. They decided to do nothing this past Fall. Then with thanks to no one but themselves they had a change of heart. Their's is a creditable record in public relations.

As women we understand that participation in the Medical Auxiliary isn't the aim of life. Still we can't be indifferent to the fact that through this organization we can come of age as good American citizens and that is certainly a great big part of life.

Americans originally built a nation around an ideal. Let us think big and build this auxiliary around the ideal of Americanism.

None of us ever doubted this day of reckoning would arrive. What I can't understand is how it got here in such a hurry. You have given me two of the best years of my life. Years filled with new experiences, now friendships and a wider outlook. I am deeply conscious of how little I had to offer compared with the bounty received but from the bottom of my heart, please accept the appreciation I feel for your loyalty, your remarkable hospitality, your generous understanding and patience.

God love you and keep you through the coming year.

Respectfully submitted,
Ruth E. Schoffman
Phoenix, Arizona

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY **X-RAY THERAPY**
RADIUM THERAPY
CLINICAL PATHOLOGY **TISSUE PATHOLOGY**
ELECTROCARDIOGRAPHY **BASAL METABOLISM**

R. Lee Foster, M.D., Director John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist



Arizona Medicine

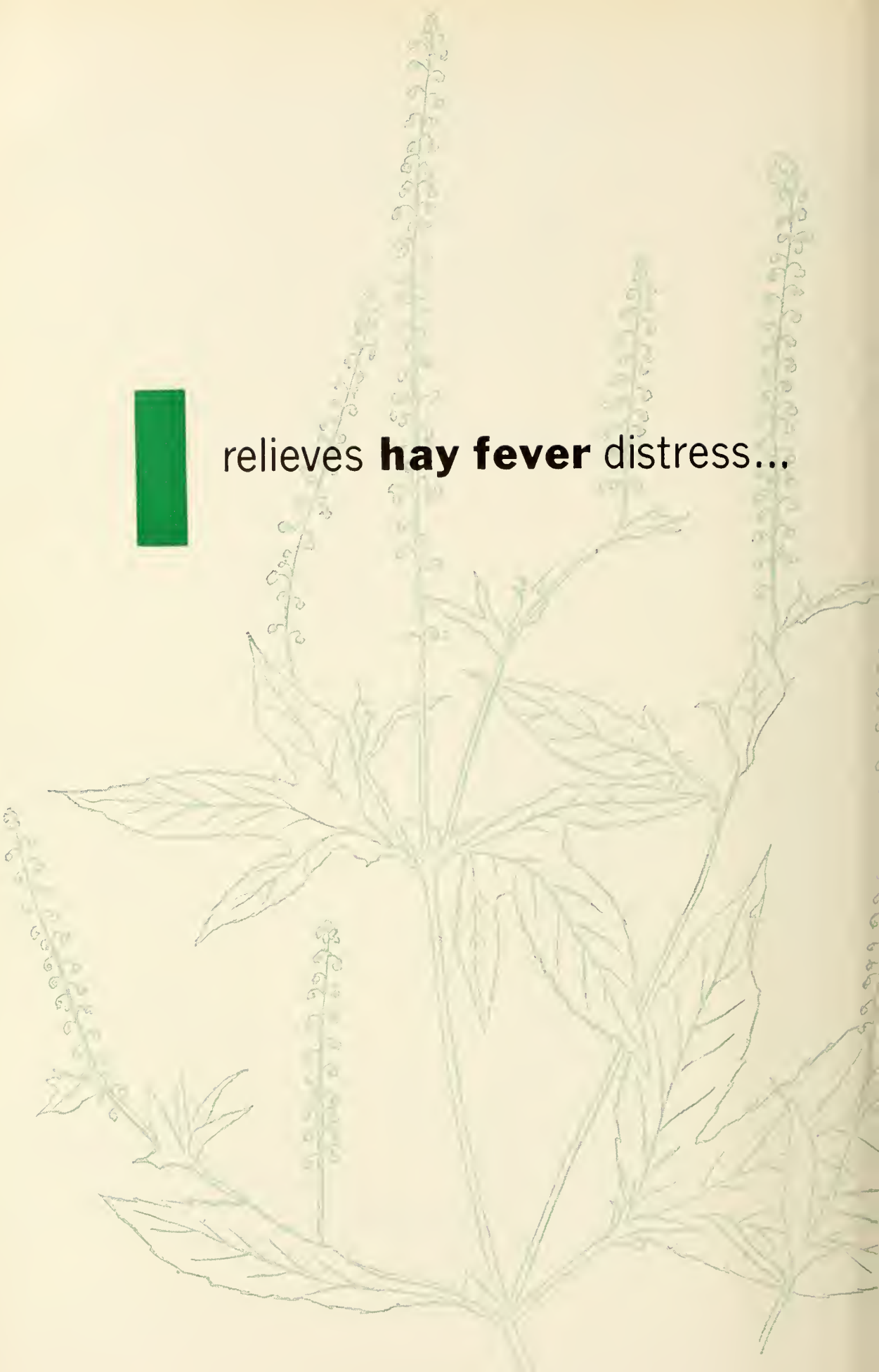
Journal of ARIZONA MEDICAL ASSOCIATION

U. C. MEDICAL LIBRARY
AUG 28 1953
San Francisco, 22

ADVERTISED SOLELY TO THE MEDICAL AND ALLIED PROFESSIONS

Lilly

Antibiotics, Lilly for every indication



relieves **hay fever** distress...

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 8 AUGUST, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI
COUNTY MEDICAL SOCIETY OFFICERS DIRECTORY VIII

ORIGINAL ARTICLES

THORACOPLASTY WITH SUBSCAPULAR PARAFFIN PACK 279
Drs. Wm. M. Lees; Robt. T. Fox; Miguel Castellanos; Wm. E. Adams; and Otto L. Bettag, Chicago, Illinois
DIAGNOSTIC AND THERAPEUTIC NERVE BLOCKS: THEIR USE IN COMBATING "PATHOLOGIC" PAIN 283
John S. Lundy, M.D., Rochester, Minnesota

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 285
Kent Thayer, M.D., Phoenix, Arizona

THE PRESIDENT'S PAGE

VETERANS OF MILITARY SERVICE CONCERNING HOSPITAL CARE 296
Edward M. Hayden, M.D., President, Arizona Medical Association, Inc.

EDITORIAL

HOW MUCH ANATOMY DO YOU KNOW, DOCTOR? 297

INTERESTING TOPICS

ARTICLES IN RECENT JOURNALS WORTH A LITTLE TROUBLE TO GET AND READ 298

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 300
Guillermo Osler, M.D.
PRE-EMPLOYMENT AND PERIODIC EXAMINATIONS IN INDUSTRY 295
THE FASCIA LATA REPAIR OF HERNIAS 295
RESOLUTION ADOPTED BY THE ARIZONA PHARMACEUTICAL ASSOCIATION .. 302
THE AMERICAN CONGRESS OF PHYSICAL MEDICINE & REHABILITATION 302
BOOK REVIEW: A GENETIC, CLINICAL, AND PATHO-ANATOMICAL STUDY 303
ANOTHER PITFALL IN ANTIBIOTIC THERAPY 303
THE MEANING OF PHARMACY 304
Arizona Pharmaceutical Page
REPUBLICAN "FRESHMEN" ON SENATE HEALTH SUBCOMMITTEE 305
KEEP PLUGGING "YOUR DOCTOR" FILM 305
UNIVERSITY OF COLORADO MEDICINE NEWS RELEASE 310

WOMAN'S AUXILIARY

PUBLIC RELATIONS 309
Mrs. John K. Bennett, Tucson, Arizona

DIRECTORY

LABORATORIES XIX
SANATORIUM DIRECTORY XX
DRUGGISTS DIRECTORY XXIV
PHYSICIANS DIRECTORY XXVII

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 341 SECURITY BUILDING
231 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Charles E. Van Epps, M. D., Phoenix; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holhrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smith
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 8 AUGUST, 1953

Original ARTICLES

THORACOPLASTY WITH SUBSCAPULAR PARAFFIN PACK

William M. Lees, Robert T. Fox, Miguel Castellanos
William E. Adams and Otto L. Bettag
Chicago, Illinois*

Since de Cerenville's attempt in 1885 to utilize rib resection to close lung cavities, many modifications of the operation have been reported. These include the operations of Quincke, Spengler, Boiffin and Gourdet, Brauer, Friedrich, Wilms and Sauerbruch. All of these men performed successful thoracoplasties albeit with a high mortality from the extensive resection of the chest wall which led to the marked paradoxical motion of the thorax. Gradually surgeons began to realize that it was safer to perform the operation in two or more stages, and Ochsner and Hedblom stressed the point in the literature. At about the same time, Alexander (1925) mentioned the value of the multiple-stage procedure and by 1928 this was routine in his clinic. It was then found that better collapse could be obtained if the transverse processes were removed. Therefore, today, the modern thoracoplasty of the conventional type consists of removal of ribs from above downward in several stages together with their transverse processes.

Reports from various clinics as to the efficacy of this procedure in controlling the disease have been reported as being from 55% to 85% of the patients, depending upon the type and extent of disease present. This leaves a considerable number of patients in whom the operation has failed to control the tuberculous infection. The last mentioned fact has caused many surgeons to try many methods of improving the conventional thoracoplasty. This led to the use in the subscapular space of argyrol soaked gauze, muscle flaps, fat grafts, saline solution, air, olive oil, gelfoam, lucite balls, polythene bag, costoversion and paraffin. The variety of substances utilized indicates that we all recognize the limitations of thoracoplasty and seek to improve the results obtained with it. It also indicates that no one substance is completely satisfactory as yet.

Realizing the limitations of the conventional thoracoplasty, one of us (W.E.A.) in 1947, began to utilize a molded mass of paraffin in the subscapular space after resecting the ribs. Insofar as we can determine, this is the first use of paraffin in this manner. In 1936 Wangensteen suggested the use of paraffin or a paraffin coated rubber sponge, to be put in the subscapular space after the first stage and to be removed at the second stage of the thoracoplasty. However, there is no reference to indicate that he actually used this procedure. Early in the experience Adams and later Head removed the subscapular paraffin at the time of the second stage. More recently the thoracoplasty has been performed in one stage and the paraffin left in place.

Two years after the first several cases, it was noted that the paraffin was well tolerated by the patients and the collapse obtained was excellent. We therefore began to utilize the operation as a routine at the Municipal Tuberculosis Sanitarium of Chicago, in December 1950. More than 225 patients have now had such a modified

From the Municipal Tuberculosis Sanitarium, Stritch School of Medicine of Loyola University, and the Medical Schools of Northwestern University and the University of Chicago.
Presented, Arizona Chapter of Amer. Coll. Chest Phy., April, 1952.

thoracoplasty performed by the authors or by residents under the direct supervision of one of us. One hundred and fifty-five of these patients have been followd for more than 6 months. We are fully cognizant of the fact that no conclusions can be drawn from a study based on such a short follow-up, especially in such an insidious disease as tuberculosis. However, we feel that our observations will be of interest to many who have to treat tuberculous patients.

Essentially the operation is performed as follows: the ribs are removed subperiosteally overlying the area of disease. As many as eight ribs have been removed in one stage. The dissection is carried posteriorly to the head of the ribs and the attachments of the intercostal muscles to the Erector spinae muscle mass are freed. Only the tips of the transverse processes are removed. In the space so created, a molded mass of sterile paraffin is placd. The extracostal muscles are then carefully reapproximated in anatomical layers. The wax pack improves the collapse and more importantly, maintains this collapse. (Fig. 1).

Following the conventional thoracoplasty, fluid fills the subscapular space and an x-ray taken at this time reveals excellent collapse. As this fluid is absorbed the regenerating rib cage is permitted to move away from the spine and mediastinum, thereby permitting partial re-expansion of the underlying lung in spite of the protection of the scapula. Admittedly, the majority of these patients have their disease controlled by the collapse obtained even though the collapse is not optimum. Even in this group of patients, however, several stages of operation have been necessary with the resultant risks attendant in a surgical procedure of such magnitude. In addition, the removal of the transverse processes results in roto-scoliosis of the vertebral column which in some patients is severe enough to greatly decrease pulmonary ventilation. The chest wall deformity incidental to thoracoplasty is familiar to all who treat tuberculosis.

The use of a paraffin plomb or prosthesis has been proven to prevent the sinking in of the chest wall and scapula. More importantly, the subscapular paraffin pack maintains the collapse, and prevents paradoxical motion of the chest wall permitting the operation to be performed in one stage in 90% of the cases. The one stage procedure should be of considerable importance in the surgical treatment of tuberculosis in mental patients. It also effects great economy in the care of large groups of patients. Permitting the muscle attachments to remain on the transverse processes helps to prevent scoliosis (Fig. 2).

CONVENTIONAL TWO OR THREE STAGE, 7 RIB MODERN THORACOPLASTY

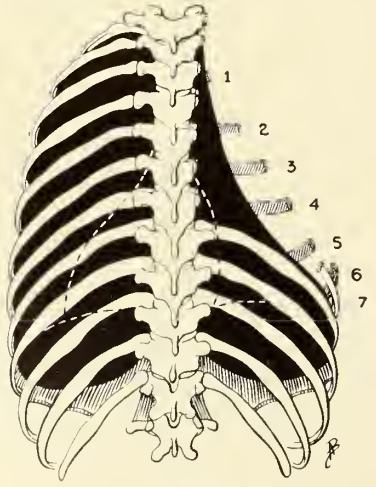


FIGURE A

ONE STAGE, 6 RIB THORACOPLASTY WITH SUBSCAPULAR WAX

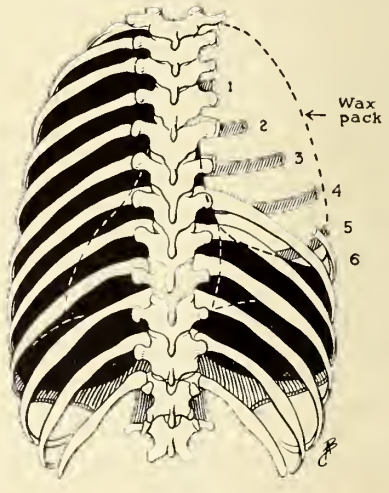


FIGURE B

Figure 1—Diagrammatic illustrations of the bony thorax, A—after a modern, conventional type, 7—rib thoracoplasty, B—following a 6—rib, one-stage thoracoplasty with a subscapular wax pack. Note greater degree of selectivity of collapse in B, with resection of one less rib, in one stage, and without the removal of the entire transverse processes. (Reprinted by permission of C. V. Mosby Company).

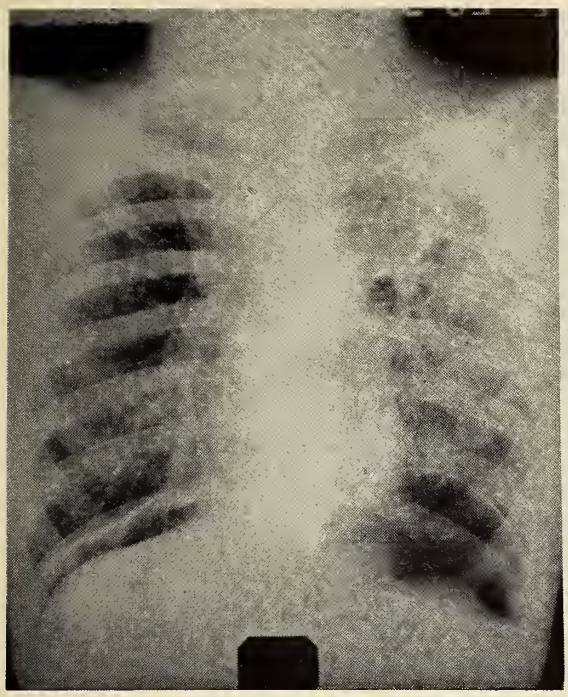


FIGURE A

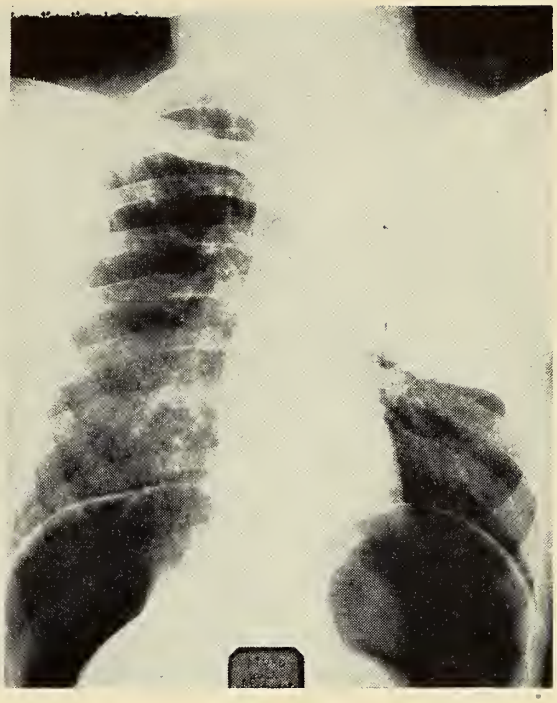


FIGURE B

Figure 2—Thoracoplasty with a subscapular wax pack in place. A—pre-operative x-ray appearance of chest showing far advanced, cavitary tuberculosis in the left lung and scattered disease in the right. B—film 1 year after operation with the wax pack in place and pneumoperitoneum re-started. C,D,E—photographs of the patient. Note minimal scoliosis, maintained collapse and absence of chest wall deformity.



FIGURE C



FIGURE D



FIGURE E

The patients in this study have pre-operatively been divided in three groups depending on the severity of their disease:

I—Patients in whom thoracoplasty can be reasonably expected to control the disease.

II—Patients whose cavitation is of such size or location that thoracoplasty cannot be reasonably expected to control the disease in more than 50% of the cases.

III—Patients with far advanced bilateral disease who may be classed strictly as salvage cases.

A total of 155 patients have had their operation 6 or more months before this study. Eighty-one are men and seventy-four are women. Ninety-nine are Causasian and fifty-six are in the group of Negro, Mexican, Indian or Oriental. Eighty-two patients had their operation on the right side and seventy-three on the left side. Nine patients were between 17 and 20 years of

age, forty-six between 21 and 30 years, forty-nine between 31 and 40 years, twenty-one between 41 and 50 years, fifteen between 51 and 60 years, and two patients were 63 and 65 years old respectively. General anesthesia was utilized in 106 and local anesthesia in 49 cases. No additional risk has thus far been apparent in those patients with general anesthesia. More recently we have utilized epidural anesthesia with excellent results.

Subscapular fluid requiring aspiration occurred in 31 instances. In six patients, repeated aspiration was necessary. Of the latter, in only one did the fluid persist so that removal of the pack was necessary. This patient is well and negative by culture. In 38 patients, intrapleural fluid developed even though no obvious pleural tear was noted by the surgeon. In only two instances were more than two thoracentesis required. In all these patients, fluid formation ceased with no obvious effect on the lung or pleura.

In five patients there was exacerbation of a pre-existing lesion in the contralateral lung. These patients had tuberculous bronchitis reported at some time pre-operatively. All of these have cleared satisfactorily under treatment. In no patient was there a true spread of disease to an area previously seen to be uninvolved.

In two instances, some pressure effect on the subclavian vein was present. In one instance the pack was removed and replaced by a smaller one with complete relief of the symptoms. In the other patient, symptoms appeared one year after thoracoplasty and we have discussed removal of the wax with the patient. Both patients have negative sputa. Two patients had brachial plexus pain which subsided spontaneously. It is only fair to say that these four patients were operated upon early in our experience with this operation, and in all probability our inexperience with the amount of wax to use contributed in no small way with the difficulty.

Four patients died 6 months or more after operation. There were three deaths within 3 months after operation; of these,

one, a woman age 26, died 2 days after operation; this patient had far advanced bilateral disease and was accepted as a desperate risk, salvage case,

the second, a man age 65, died 3 weeks after surgery, apparently of a coronary since he had been up and about and was found dead in bed in the early morning hours;

the third, age 52, died 2 months after operation of gradual cardiovascular failure, in spite of what appeared to be adequate treatment. None of the patients who died was in Group I; two patients were in Group II, and five patients were in Group III.

Routinely, all patients were bronchoscoped as part of the pre-operative work-up. Definite evidence of bronchial disease presumed to be on a tuberculous basis was present in 39 patients. These patients were given intensive chemotherapy (daily Streptomycin and PAS) and regression or disappearance of the endobronchitis was a prerequisite to operation. Five patients had a tuberculous empyema prior to operation. Even though these complications obviously increase the morbidity, we have not deleted them from this study since it is our intent to report the results in an unselected group of patients.

Three successive sputum or gastric cultures were required before the patient was labelled as negative. We have been able to obtain these studies in all cases. However, in 16 patients, less than 12 weeks have elapsed since the last culture was planted and even though they are ngative so far, we have not included them in the following table.

TABLE I

Group	Total Patients Followed	Negative No.	Negative %	Positive No.	Positive %	Dead No.	Dead %
I	95	86	90.5	9	9.5	0	0
II	36	22	61.1	14	38.8	2	5.5
III	8	0		8		5	62.5
Total	139	108	77.7	31	22.3	7	5.0

It will be noted from Table I, that in those patients for whom thoracoplasty offers a good chance for cure (Group I) less than 10% were positive 6 months or more after operation. Also important is the fact that Group II patients, with less than 50% chance for cure by thoracoplasty, at least 61% were negative 6 months or more after operation. These results were obtained despite the fact that a considerable percentage of these Group II patients had either bilateral active disease or a cavity of the size or the location of which made it doubtful that arrest of the disease would follow. We therefore believe that the addition of the subscapular paraffin pack has merit and warrants further investigation.

SUMMARY

Experience with over 225 patients with pulmonary tuberculosis treated by a modified type of thoracoplasty using a subscapular prosthesis

is presented. The advantages of ths modified operation over the conventional thoracoplasty are outlined. In view of the low incidence of complications and the satisfactory results obtained, we are encouraged to continue using this procedure.

DIAGNOSTIC AND THERAPEUTIC NERVE BLOCKS: THEIR USE IN COMBATING "PATHOLOGIC" PAIN*

John S. Lundy, M.D.
Section of Anesthesiology and Intravenous Therapy,
Mayo Clinic, Rochester, Minnesota

The use of nerve blocks for the relief of surgical pain is understood and accepted. In the last year or two certain new blocks have been suggested (1-3). Diagnostic and therapeutic nerve blocks as a means of attacking the problem of pain in general also have been under consideration for a long time. Nevertheless, various contributions in this field have not been sufficiently understood, appreciated or accepted. Many have attacked the problem and it is a field in which I, too, have been greatly interested (4-7).

Most of the diagnostic blocks are based on the same blocks that first were made to provide anesthesia for operation. It now appears that some of the work that has been done in connection with diagnostic and therapeutic blocks will contribute considerably toward better technic in connection with operations, both during the time of operation and immediately afterwards. For example, after I had worked with the preparation dolamin, which contained 0.75 per cent ammonium sulfate and the same percentage of benzyl alcohol, I gradually tried various combinations. I think the optimal one that I have yet used is a mixture called "I PAB_2," which stands for the following: 1 per cent procaine, 2.5 per cent ammonium sulfate and 2 per cent benzyl alcohol. With this mixture placed properly under roentgenographic control, or a mixture called "PAB_2," which contains 0.5 per cent procaine, 2.5 per cent ammonium sulfate and 2 per cent benzyl alcohol, or both mixtures, I have been able to prolong relief from pain for many hours, and sometimes for days or longer. A diagnostic block done with a local anesthetic agent only, such as procaine or metycaine, might leave doubt as to the diagnosis. I expect gradually to increase the concentration of ammonium sulfate in the mixture.

There has been a tendency to inject absolute alcohol about the lumbar sympathetic chain or the stellate ganglion in order to obtain a prolonged, temporary effect similar to that of sympathectomy. This serves two purposes: 1. It helps the patient temporarily and, if his trouble does not recur, he can avoid operation. 2. If the patient is satisfactorily relieved for a time, and his symptoms recur, sympathectomy can be performed with a favorable prognosis. The effectiveness of the use of alcohol on the sympathetic system usually is verified by having a sweating test done. On occasion the sweating pattern which I sought has not developed until after the third attempt to block the sympathetic nerves. Furthermore, duration of the effect of the block can be verified by a sweating test.

This particularly applies to a patient who suffers extremely from a lesion of the pancreas and block of the posterior splanchnic system, with alcohol, has been done under roentgenographic control. It is surprising, however, that in some cases, although relief of pain is distinct, the expected sweating pattern is indistinct whereas, in other cases the sweating pattern is definite. If the pain of these patients is relieved for two or three months, but then returns with great intensity, as in a case which I currently have been observing, the sweating test should be repeated. If results of the sweating test are much as before, there is no need for re-injection. What the patient probably needs is an operation for relief of his pancreatic condition.

Case 1.—To help a woman who had a pancreatic lesion, block was done on December 28, 1951. She experienced relief for two and a half months. Her sweating pattern did not change but her pain became intense. Finally, because of her thinness—weight 78 pounds (about 35.5 kg.)—the pancreatic lesion could be palpated and was perceived to have increased in size. Accordingly operation was performed, consisting of the following: extensive resection of part of the stomach, all of the duodenum, half of the pancreas, 2 inches (about 5 cm.) of the common

*Read at the meeting of the New England Society of Anesthesiologists, Hanover, New Hampshire, October 3, 1952.

bile duct and 8 inches (about 20 cm.) of the jejunum. Continuity of the stomach and upper part of the intestinal tract was re-established and the orifices of the common bile duct and the pancreatic duct were reimplanted. This patient made an uneventful convalescence. Soon she weighed 97 pounds (44 kg.), was free of pain and was feeling well. I think she would not have been helped by another nerve block.

Case 2.—A woman, 44 years of age, on September 28, 1949, underwent right paravertebral somatic block of cervical nerves 4, 5, 6, 7 and 8, because of root pain from metastatic carcinoma of the right breast. One cubic centimeter of solution (2 per cent metycaine without epinephrine) was injected through each needle beginning with C-4 and proceeding to include C-8. When the needles were placed and the solution injected, it appeared that the pain path was over C-6, 7 and 8. The first thoracic nerve was not injected because, not more than ten minutes after injection of the cervical nerves, the patient was practically free of pain, even in the little finger; only a little distress was left in the back of her hand. On September 30, 1949, posterior (sensory) rhizotomy of the fifth, sixth, seventh and eighth cervical segments was performed. She was relieved of her pain for a time afterwards however, eventually she died of carcinoma and, before she died, more pain had developed in other parts of her body.

Case 3.—A woman, 58 years of age, on January 26, 1951, underwent diagnostic left stellate ganglion block (anterolateral approach) because of pain in the left ear and left arm. The following day the patient said that she was completely relieved of pain in her left ear for one hour following establishment of the sympathetic block and that the pain in her arm was clearing. On January 30, 1951, left cervicothoracic sympathetic ganglionectomy (anterior approach) was done and, on February 6, 1951, at the time of her dismissal, the patient stated that she was completely relieved of the pain in her head and that the pain in her arm and shoulder was clearing.

Case 4.—A woman, 55 years of age, on December 11, 1947, underwent excision of an inflammatory ulcer of the posterior wall of the vagina. She returned September 14, 1950, because of pain in the left groin, thigh and knee, at which time diagnostic and therapeutic caudal and transsacral blocks were done. A caudal needle was inserted through the sacrococcygeal hiatus into the caudal canal and was thrust superiorly until its point was at the level of the fourth sacral nerve. An 80 mm. needle was placed in the left second sacral foramen. By roentgenographic methods, the needles were seen to be in good position. Five cubic centimeters of 1 per cent procaine solution, with epinephrine, were injected into the canal and 10 cc. of the same solution into the second sacral foramen. After fifteen minutes the patient was relieved of pain in the left thigh and knee but she still complained of pain in the left groin. Ten cubic centimeters of additional solution were injected into the caudal canal fifteen minutes later and, five minutes later, the patient was completely relieved of her old pain. She then was able to lie prone on the table, which she had been unable to do previous to the block. Ten centimeters of 5 per cent ammonium sulfate were then injected into the caudal canal and 2.5 cc. into the left second sacral foramen. The patient was relieved of pain in the left leg for almost five weeks.

On October 20, 1950, a therapeutic injection of procaine and ammonium sulfate was done because the woman was having pain in both hips and over the sacral region, as well as down the medial aspect of her left thigh. We have been informed that the patient died in March, 1950, and that our attempt to relieve her pain was unsuccessful.

I am convinced that the physician who is to perform a diagnostic or therapeutic nerve block should become acquainted with his patient, should understand him as well as possible and should see to it that the patient realizes that the blocks are intended to help him. It is impossible to promise what the result will be but, as a rule, a block must be done in order, perhaps, to arrive at a decision concerning the program to be followed. In a case in which a large, so-called functional element is thought to exist, perhaps the patient can be interviewed by a psychiatrist before the block is effected. Then, if the pain can be relieved for a time by means of nerve block, the psychiatrist may be able to engage the patient's attention better, and perhaps to learn more about the case, than if the block had not been done. The sudden mental change that goes along with relief of pain may increase the ability of the patient to talk and

of the psychiatrist to gain the patient's confidence.

The whole question of pain is fascinating and has been dealt with extensively in the past. Recently, however, an increase in the amount of information has aided toward understanding of the difficult subject. In February, 1952, almost an entire issue of the *Journal-Lancet* was devoted to material concerning pain and more attention will be paid to the subject in subsequent issues. An issue devoted to pain is planned for November, 1952, and another for about February, 1953.

I think it is beginning to become more or less clear that there are two kinds of pain: physiologic pain and pathologic pain. It is becoming increasingly apparent to those of us who have worked in the field of anesthesia for a long time, that if we are to attempt to combat pathologic pain, we must have a great deal of information at our disposal, and must have some understanding of it. More information and more understanding will be required than were necessary simply for the fight against physiologic pain —an example of which is anesthesia for surgical operation.

REFERENCES

1. Bonica, J. J.: Use of Pontocaine for Regional Anesthesia: An Analysis of 3000 Cases. Anesth. & Analg. 30:1-15 (Jan.-Feb.); 76-88 (Mar.-Apr.) 1951.
2. Moore, D. C.: Pontocaine Solutions for Regional Analgesia Other Than Spinal and Epidural Block; an Analysis of 2,500 Cases. J.A.M.A. 146:803-809 (June 30) 1951.
3. Papper, E. M. and Rovenstine, E. A.: Newer Analgesic Methods and Agents of Value in the Control of Pain. New York State J. Med. 50:281-285 (Feb. 1) 1950.
4. Lundy, J. S.: Diagnostic and Therapeutic Nerve Block in General Practice. Northwest Med. 50:577-582 (Aug.) 1951.
5. Pender, J. W. and Pugh, D. G.: Diagnostic and Therapeutic Nerve Blocks: Necessity for Roentgenograms. J.A.M.A. 146: 798-801 (June 30) 1951.
6. Adams, R. C.: Diagnostic and Therapeutic Nerve Block; General Considerations. J.A.M.A. 146:801-803 (June 30) 1951.
7. Pender, J. W. and Lundy, J. S.: Diagnostic and Therapeutic Nerve Blocks. Journal-Lancet. 72:76-83 (Feb.) 1952.

PHOENIX Clinical CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 28

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

(Note: Sort of an IQ test. Thing looked difficult to me, but the clinical diagnosis, the Mass. Genl. discussant's diagnosis and the anatomical diagnosis,—all agreed. So, it must be easy. Presented, so our discussants can settle whether it is easy or hard.)

A forty-nine-year-old woman entered the hospital because of loose bowel movements.

The patient had a twenty-year history of mild epigastric pain, with some nausea and vomiting, and intolerance to fried food. One year prior to admission, because of increasing severity of the symptoms, a cholecystectomy was done, with relief of the symptoms for a short time. Seven months prior to admission the patient noted a change in character of the epigastric pain, which became sharper. The pain occurred in episodes, once or twice a day, lasted ten to fifteen minutes and on some occasions radiated to below the right scapula. These attacks had no relation to meals and occurred during both night and day, sometimes awakening. Four months prior to admission she noted a burning epigastric pain that occurred fifteen to twenty minutes after meals. With this she was frequently nauseated and at times vomited bile-stained material, with relief of the pain. At about this time she first noted loose stools; these occurred at first only one or two days a week but later in periods of three or four days of diarrhea alternating with two to three days of obstipation or at most one formed stool. The loose stools were accompanied by abdominal cramps and at times by tenesmus; during the periods of obstipation the abdomen increased in size and then decreased with the onset of the diarrhea. The stools were thick, grayish-yellow, liquid, foamy and foul smelling; bloody mucus or greasiness had not been noted. As the severity of the symptoms gradually increased, three months prior to admission the patient was placed on a bland diet and given medicine. She continued to have diarrhea, epigastric pain and abdominal cramps; six weeks before admission she entered another hospital, where she remained for five weeks. Deep pigmentation of the skin of the hands, chin and legs was noted. The hemoglobin was 71 per cent and the red-cell count 3,660,000. There were 13 eosinophils in the smear of blood taken when the patient was in a fasting state. The serum sodium was 138.7 milliequiv and

the potassium 4.7 milliequiv. per liter; 2.88 mg. of 17-ketosteroids were excreted in 24 hours. A Kepler water test was normal. The patient received two blood transfusions, folovite, reticulogen, liver injections, iron tablets, paregoric and a bland low-fat diet, but there was little change in her condition. She had lost 25 pounds in weight and was becoming progressively weaker. The diarrhea and abdominal pain remained unchanged.

Eleven years before admission she had a supravaginal hysterectomy for "fibroids." Two years prior to admission she had an attack of rheumatoid arthritis that lasted five months and subsided during gold therapy. In the winter of that same year and in the following winter she had had attacks of "pleurisy." There was no previous history of diarrhea.

Physical examination revealed a thin woman with a diffuse yellowish-brown pigmentation of the skin; the deepest pigmentation was in palmar creases and operative scars. The heart and lungs were normal. The abdomen was protuberant and the epigastrium was somewhat tender. No masses or organs were felt.

The temperature, pulse and respirations were normal. The blood pressure was 120 systolic, 50 diastolic.

The urine was normal. Examination of the blood showed a red-cell count of 3,260,000, a white-cell count of 10,900, with 94 per cent neutrophils, and a hemoglobin of 9.0 gm. A hematocrit was 24 and the mean corpuscular volume was 73 cu. microns. The serum sodium was 130 milliequiv., the chloride 97 milliequiv. and the potassium 3.0 milliequiv. per liter; the total protein was 4.7 gm., the amalyse 23 units, the alkaline phosphatase 9.6 units and the nonprotein nitrogen 20 mg. per 100 cc. A bromsulfalein test and a prothrombin time were normal. The eosinophil count was 9 cells per cu. mm. in the fasting state, 48 cells per cu. mm. four hours after ACTH (adrenocorticotrophic hormone) injection. The first few stool specimens were guaiac negative, but subsequent specimens were consistently guaiac one plus to four plus. No undigested meat fibers were seen on microscopical examination of the stools. There was an increase in neutral and combined fats in the stools. Two and three-day stool collections showed a total daily fat content varying from 15.77 to 23.05 gm. and a total daily nitrogen content varying from 1.88 to 2.68 gm. A gastric analysis showed no free hydrochloric acid. No tumor cells were seen in a cytologic examination of the duodenal drainage. The duodenal contents were collected for 45 minutes after the injection of 50 cc. of 20 per cent cream; analysis revealed the following: amalyse 74.0 units per 100 cc., lipase 32.6 cc. and trypsin 35 per cent. A gastrointestinal series showed a dilated duodenum and abnormal segmentation of the jejunum, with pooling of the barium. The mucosa of the duodenum and jejunum appeared to be coarse and wide.

During the period of investigation the diarrhea continued unabated, the stools being greasy and foul. On the tenth day intravenous injection of ACTH was begun; three days later her appetite had returned and she was gaining weight and strength rapidly. During the next week she continued to improve; there was mild pedal edema and mild euphoria. On the twenty-first hospital day cortisone was substituted for the ACTH. The stools continued to become more formed and less frequent until she became mildly constipated. On the twenty-fifth hospital day she developed a chill, profuse sweating and a temperature of 102.8°F. The following day she had four loose stools and vomited occasionally. She felt very weak and "gone." The abdomen was soft, but the right lower quadrant was tender and there was no peristalsis. The blood pressure was 90 systolic, 70 diastolic. The following day an occasional abortive peristaltic tinkle could be heard, and 24 hours later the abdominal tenderness was less and subdued peristalsis could be heard. The vomiting and diarrhea persisted. On the twenty-ninth hospital day an operation was performed.

DISCUSSION BY DR. KENT THAYER

This 49 year old woman with loose greasy bowel movements and epigastric pain, shows quite an assortment of laboratory results which seem somewhat conflicting to me. We will start by trying to eliminate certain diseases. Evidently, Addison's disease was considered. We know in Addison's disease, just before or during a crisis, there may be abdominal distress which may be cramping in character. We also know that there may be associated diarrhea at these times. The pigmentation of the skin of her hands, chin and legs, is not particularly characteristic of Addison's disease, but evidently this was considered and she showed serum sodium and potassium of nearly normal levels. However,

her 17-ketosteroids were low. A Kepler water test was done and reported normal. When she entered the last hospital, it was found that her serum sodium, chloride, and potassium were all rather low. A Thorne test was done and was positive for Addison's disease; that is, she did not have a fall in her eosinophil count in four hours after the administration of ACTH. However, later on this patient was given ACTH and improved, which seems to me to eliminate Addison's disease for an Addisonian who shows no response to ACTH as far as the eosinophil count is concerned should not respond clinically. Also, a patient with enough destruction of the adrenal cortex to cause adrenal cortical failure should not respond to ACTH. Therefore, I believe Addison's disease is eliminated.

When a patient has many greasy, foul, foamy stools, one suspects pancreatic disease. This patient had had her gall bladder removed because of a long history of epigastric distress with nausea and vomiting and intolerance to fried foods. No note is made of whether actual gall bladder disease was found or whether there was a stone, but the patient did obtain relief for about three months. We must suspect, therefore, that she did have biliary tract disease and this is usually present in pancreatic disease. The history of epigastric pain which was rather sharp, lasting ten to fifteen minutes, and later a history of epigastric burning which occurred after meals and which was relieved by vomiting, then followed by loose greasy stools would cause us to suspect either a chronic pancreatitis or pancreatic calculi. Examination of the stools of patients with pancreatic insufficiency usually shows meat fibers, increase in the protein content, and increase in the fat. Our patient evidently had an increase in fat of the stools, but from the way it was recorded, I am unable to say how much, for they measure it in grams without giving us the number of grams of stool. We do not know whether this is one percent or one hundred percent. Ordinarily, the fat content of the stool should be about 17.5%. Usually in pancreatic disease the percent of neutral fat is relatively higher and that of fatty acids is low. We are not given this percentage in the protocol. Also, our patient excreted a normal amount of nitrogen in the stools for it should be three grams or less to be normal. The results of the duodenal drainage are also somewhat confusing. The amount of amylase obtained was normal. The lipase is recorded as 32.6 cc. The normal in the books I have seen is 7,000-14,000 units per hour. I am unable to interpret this. The trypsin is recorded as 35%. The normal is recorded as 20-40 units per hour. It has been shown that the enzymes obtained by duodenal drainage using the secretin test, may be somewhat variable. In acute or complete block of the pancreatic duct, all enzymes are decreased. However, in milder forms of functional disturbance, such as chronic pancreatitis, there may be a dissociated disturbance. That is, the amylase and lipase are decreased and the trypsin may be normal, which may account somewhat for the more complete digestion of proteins. It is possible that this patient has a chronic pancreatitis with intermittent obstruction, or it is possible that she has some pancreatic calculi which did not show on the x-ray film or at least was not described in the protocol. This does not explain her pigmentation. Quite often these individuals will show sugar in the urine. Our patient showed a normal urine. At no place do I find a blood sugar report nor a glucose tolerance test having been run. On admission to the last hospital, our patient showed a low serum sodium, serum chloride, potassium, low total protein with a normal albumin-globulin ratio and a low calcium. This I believe can be explained by the persistent diarrhea and evidently poor food absorption. Pancreatic cysts have been reported as causing findings similar to those of our patient, but I do not know how we can diagnose this without some x-ray evidence of widening of the duodenal loop or a palpable mass. Sprue is another condition that we must consider. Tropical sprue is evidently a deficency disease mostly of the B12 and folic acid variety. These patients usually have glossitis, macrocytic anemia and large foamy fatty stools, in which the fat is usually in a split form while in pancreatic disease the fat is neutral. This is tropical sprue and usually responds very nicely to liver extract, B12 and folic acid. This patient was given this treatment in the first hospital and did not respond. Also, we find that she does not have a macrocytic anemia but a microcytic hyprochromic type of anemia. No mention any place is made of her tongue. In non-tropical sprue, or secondary sprue, however, glossitis is usually absent and the anemia is more of a microcytic hypochromic type as our patient had. The serum calcium is usually low and these patients may have tetany.

In the protocol we find no evidence of the patient complaining of tetany, but her blood calcium was certainly below normal – down to 7.8 mg. Also in this type of disease, the protein content of the stool is normal and the pancreatic enzymes, as obtained from duodenal drainage, are within normal limits. As much as I can decipher from the information we have, the duodenal drainage from our patient was within normal limits. These patients show abnormal segmentation of the upper intestinal tract and the typical deficiency pattern of pooling or puddling of barium. This our patient also showed. They usually show achlorhydria as our patient showed and they quite often show pigmentation about the nose, chin, hands and legs, which is very typical of pellagra. Secondary sprue is dependent upon some gastro-intestinal lesion wide spread enough to interfere with intestinal absorbtion. It is not a primary disease and usually responds poorly to the treatment that is used in tropical sprue, that is, vitamins and liver. A gastrocolic fistula or a duodenal colic fistula may cause steatorrhea, but I believe it is probably ruled out by the gastro-intestinal series. Carcinoma of the pancreas with partial duct obstruction can cause steatorrhea. Again, the laboratory results would not bear this out for these individuals usually lose a lot of nitrogen in their stools. Acanthosis nigricans is a skin pigmentation that usually appears in the folds about the groins and the axilla, but later may involve the back of the neck and other parts of the skin. The skin may be roughened and at times warty. This is associated usually with an abdominal malignancy and it has been suggested that the pigmentation is due to poor intestinal absorption.

Now, we come to another stumbling block. This patient improved very nicely on intravenous ACTH and later with the use of cortisone. Her stools decreased in number and she became mildly constipated. She gained weight and felt well. Whether this is a specific response or not I do not know or whether it is a response that one gets in ulcerative colitis which is probably non-specific. However, the patient developed a chill, sweating, fever, and her loose stools and vomiting recurred. She developed pain in her right lower quadrant. Two days later she was operated on. Of the conditions I have discussed, surgery would be of no value except as an exploratory procedure, unless the patient has a carcinoma of the pancreas or has a cystic disease of the pancreas or pancreatic calculi that we are unable to see on x-ray. A common duct stone seems unlikely as a causative factor of her pain and diarrhea although it can occur, but usually it is associated with complete obstruction with jaundice and we evidently have no jaundice in our patient. Persistence of blood in her stools certainly points toward some active process in the intestinal tract but evidently no carcinoma of the stomach was found and no ulcer. There is no intermittent jaundice to make us suspect either a stone in the ampulla or carcinoma of the biliary tract or ampulla of Vater. There may have been a diffuse ulcerative lesion through the intestinal tract, but this should have given gross blood in her stools. The only thing for which I can find a reason for surgery is a possible acute appendicitis. I do not believe that has any thing to do with her previous symptoms, therefore I will have to make a diagnosis of secondary or nontropical sprue and acute appendicitis, the symptoms being masked somewhat by ACTH and cortisone. There is another condition known as intestinal lipodystrophy or Whipple's disease. This is rather rare and occurs most often in men. It is due to a "marked deposition of extra-cellular and intra-cellular fat in the small intestine and its draining lymphatic channels with some cystic dilitation and fibrosis of the lacteals and mesenteric lymphatics with resultant impaired absorption" and diarrhea. These patients have the typical steatorrhea of sprue, but associated with this are migratory joint pains and arthritis which may dominate the picture for several years before the onset of the steatorrhea. Our patient did have rheumatoid arthritis two years before admission and was treated for five months with gold therapy. Also associated with this disease is skin pigmentation that simulates Addison's disease. The diagnosis is made by abdominal exploration and biopsy and that may be what our patient had—Whipple's disease.

DIAGNOSIS

1. Secondary or non-tropical sprue.
2. Lipodystrophy or Whipple's disease.

DIFFERENTIAL DIAGNOSTIC DISCUSSION

By Dr. Franz Ingelfinger

Before reading this history I wish to point out that this is a case presenting severe diarrhea with fat loss,—that is, steatorrhea,—as a result of which the patient went rapidly downhill. I

Clinical Results* with Banthine® Bromide

(Brand of Methantheline Bromide)

22 Published Reports Covering Treatment of 1443 Peptic Ulcer Patients with Banthine

Comprising the reports published in the literature to date which give specific facts and figures of the results of treatment

AUTHORS	No. of Patients	Chronic, Resistant to Other Therapy	TYPES OF ULCERS				RELIEF OF SYMPTOMS (Chiefly Pain)				Surgery or Complications[1]	Side Effects Requiring Discontinuance of Drug[2]	EVIDENCE OF HEALING			
			Duodenal	Jejunal	Stomal	Gastric	Good	Fair	Poor	No Report			Complete	Moderate	None	No Report
Grimson, Lyons, Reeves	100	100	93	7			80	11	4		5		47		19	29
Friedman	15	15	14			1	5		4	6[3]			2			13
Bechgaard, Nielsen, Bang, Gruetund, Tobiassen	26	26	21			5	16	4	6				8	6	12	
McHardy, Browne, Edwards, Marek, Ward	162		162				136	12	11		3	1	14	9	7	129
Segal, Friedman, Watson	34	34	34[4]				14	13			7	2	5		8	14
Brown, Collins	117	99	117				97	7	8		5	8	55	9	8	40
Asher	77		65		7	5	52	9	16			16		9	21	47
Rodriguez de la Vega, Reyes Diaz	5	4	5				4		1					3	2	
Winkelstein	116	116	102	8		6	102		14				53		18	45
Hall, Hornisher, Weeks	18	18	18				11		1	6[5]			18			
Maier, Meili	38	38	24			14[6]	27	7	4[7]				10	2	5	21
Meyer, Jarman	25	18	25				21		4							25
Poth, Fromm	37	37	37				33	3	1				33	3	1	
Plummer, Burke, Williams	41	41	41				36		5				38		3	
McOonough, O'Neil	104	100	104				63	10	31			11	4		11	89
Broders	60	60	58		1	1	35	19	6				10	1	49[8]	
Legerton, Texter, Ruffin	11		11				11									11
Holoubek, Holoubek, Langford	76	69	76				35	27	10		4	10	26		10	36
Ogborn	42		39	2		1	42[9]									42
Shaiken	48	48	48				33	10	3		2		33	10	3	
Johnston	145	145	145				143		2			2	143		2	
Rossett, Knox, Stephenson	146		141			5	146					4[10]	53			93
TOTALS	*1443*	*968*	*1380*	*17*	*8*	*38*	*1142*	*132*	*131*	*12*	*26*	*54*	*552*	*52*	*179*	*634*
PERCENTAGES		67.8	95.6	1.2	0.6	2.6	81.3	9.4	9.3			3.7	70.5	6.6	22.9	

1. Not included in tabulations.
2. Included in "Relief of Symptoms" as "Poor" and in "Evidence of Healing" as "None."
3. Four had no symptoms when Banthine therapy was begun.
4. Of which seven were penetrative lesions and five partiaffy obstructive.
5. No symptoms were present in four.
6. Two with symptoms only; no demonstrable ulcer.
7. Three were psychopathic patients and one had a ventricular ulcer of the lesser curvature.
8. Roentgen findings after treatment period of two weeks; forty-seven had duodenal deformity.
9. All returned to work within a week.
10. In these four, after relief of symptoms, Banthine was discontinued because of urinary retention.

During the past three years, more than 250 references to Banthine therapy in peptic ulcer and other parasympathotonic conditions have appeared in medical literature. Of these reports, 22 have presented specific facts and figures on the results of treatment in a total of 1,443 peptic ulcer patients, 67.8 per cent of whom were reported as chronic or resistant to other therapy. These results are tabulated above and show:

"Good" relief of symptoms was obtained in 81.3 per cent of the 1,405 patients on whom reports were available.

"Complete" evidence of healing was obtained in 70.5 per cent of the 783 patients on whom reports were available.

In all but 9.3 per cent, relief of pain was "good" or "fair." In all but 22.9 per cent, evidence of healing was "complete" or "moderate."

During treatment, 26 patients required surgery or developed complications other than ulcer which required discontinuance of the drug before results could be evaluated.

Of the remaining 1,417 patients, only 3.7 per cent experienced side effects sufficiently annoying to require discontinuance of the drug.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

*Volume containing complete references, with abstracts of 39 additional reports, will be furnished on request by

G. D. SEARLE & Co.
P. O. Box 5110, Chicago 80, Illinois

think it helps, in hearing a history, to be oriented as to the major difficulty so that significant details may be appreciated. Dr. Chester Jones, Dr. Culver and their associates have been interested in a gastric factor as related to the steatorrhea that may follow gastrectomy, but this is usually not a cause of major steatorrhea. Severe steatorrhea is caused either by hepatobiliary insufficiency, by pancreatic disease or insufficiency, or by diffuse intestinal disease that impairs the absorbing surface. As I read through the history, let me see if I can select points that indicate one or the other of these three major causes of steatorrhea.

Dr. Chester M. Jones: May I make one comment. The pigmentation of the skin was so dark,—it was yellowish brown,—that she had been taken for a Negress by some persons who had not seen her previously.

Dr. Ingelfinger: I am happy to hear that, as yellowish pigmentation is relatively rare except as a result of jaundice or exposure to certain chemicals, but brown in various shades of intensity is quite common in a number of intestinal disorders. Now, with respect to the three possible causes of major steatorrhea, I shall dismiss disease of the hepatobiliary system, because the patient had no jaundice and the albumin-globulin ratio, prothrombin time and bromsulfalein test showed no evidence of liver disease.

Let me go on to pancreatic insufficiency. I do not believe this patient primarily had a pancreatic insufficiency for the following reasons: In the first place, she had a rather variable pain. Suppose she had a carcinoma of the pancreas; then the carcinoma would obviously have to be of the body or the tail, since she had no jaundice. When pain develops in this disease, it is a prominent feature and does not migrate over the abdomen and change its character, as it did in this case. As there appeared to be little back radiation of this patient's pain, it did not seem to be the pain that I usually associate with carcinoma of the body or tail of the pancreas. Such pain may vary from patient to patient, but in any one patient it will tend to be fairly constant. In chronic pancreatitis the pain might be like this, but this patient went downhill too rapidly for that disease. Deep pigmentation is a rare feature of pancreatic insufficiency, even when patients have considerable steatorrhea because of it.

An analysis of the stools showed that there were no undigested meat fibers and that the 24 hour fecal loss of nitrogen was less than 3 gm. Thaysen has given us 3 gm. as a magic figure, a daily loss of nitrogen below 3 gm. being said to indicate steatorrhea not caused by pancreatic disease, whereas a loss of more than 3 gm. is said to occur in pancreatogenous steatorrhea, for in this condition tryptic as well as lipolytic function is impaired. Although I think it risky to put too much trust in such sharply differentiated levels, nevertheless the facts that the patient had no meat fibers and put out less than 3 gm. of nitrogen in the stools are both good arguments against pancreatic disease.

As far as the analysis of the duodenal contents is concerned, I asked a spy to inquire discreetly what was considered normal here at the Massachusetts General Hospital. He started at a technician level and ended at the physician level, but no one could tell him. If you asked me what is normal at the Massachusetts Memorial Hospitals, I would say,—"I will call so-and-so and let you know in a day." So many different methods are used, so many different stimulants are used,—cream, in this case,—and so many variable periods of collection are used, that it is difficult to know what is normal. No matter what is normal, however, there appears to be some pancreatic activity, as evidenced by these tests, and the finding of some pancreatic activity, even if less than optimum, does not favor the possibility that this patient's steatorrhea was pancreatogenous. Furthermore, although I know that the Massachusetts General Hospital staff is interested in investigation, the fact that ACTH rather than pancreatic extract was used to treat this patient is an indication that they did not consider the duodenal enzyme studies indicative of pancreatic insufficiency.

Why do I discount the results of the enzyme determinations on the duodenal contents as a sign of pancreatic disease, even if the values reported should be considered low? Because by the time pancreatic disease has caused as much steatorrhea and weight loss as this patient had, any pancreatic function test would show practically no enzymatic activity whatever. Severe steatorrhea of pancreatic origin requires severe impairment of pancreatic function, and consequently a moderate or even low normal pancreatic enzyme output would not be consistent with severe pancreatogenous steatorrhea. These considerations induce me to eliminate the pan-

creas as responsible for this patient's difficulties.

Let us go on to insufficiency of the intestine itself. An obvious cause of steatorrhea is a short circuit of the small intestine. But I have no reason to suspect that this patient had some entero-enterostomy that permitted food to bypass a large area of gut. I have to suppose that she had some disease of the intestine interfering with the absorption of food—particularly of fat. A great many findings suggest an Addisonian type of picture: pigmentation, weakness, loss of weight. We know that patients with Addison's disease may have bizarre gastrointestinal manifestations; nevertheless, there are certain arguments against either an adrenal or a pituitary disorder. The blood pressure was never very low. One year before admission the patient easily survived cholecystectomy. The serum sodium and potassium were not at levels found in Addison's disease. The 17- ketosteroid excretion was low, indeed, but it is low in many advanced debilitated conditions. The fecal loss of fat is also in excess of that usually found in Addison's disease. Although many physicians have tried to relate the adrenal cortex to fat absorption, the relation appears tenuous. In the untreated Addisonian patient a low eosinophile count is usually not found. Finally, the proof that the patient responded well to ACTH and cortisone is good evidence that she did not have either adrenocortical or pituitary insufficiency. Pigmentation is a common feature, moreover, of chronic small intestine insufficiency. Many patients with sprue, some with ulcerative colitis and some with ileitis have extensive pigmentation. The fact that the patient had pigmentation to such a degree that she was mistaken for a Negress,—which I must admit I have never seen—is not incompatible with an intestinal disorder.

What was the intestinal disorder? The most common small intestine disorder is regional enteritis or jejunoileitis, a more diffuse variant of the same disease. Did she have that? Usually this disease does not cause such extensive steatorrhea. Steatorrhea of intestinal origin usually indicates a very diffuse disorder, and even if half the intestine were peppered with granulomatous jejunoileitis, steatorrhea would not be so prominent. The most striking argument against regional enteritis is, however, the essentially negative x-ray report. Possibly this would be a good time to ask to see the films.

Dr. Stanley M. Wyman: The important films, those of the upper gastrointestinal tract, show a duodenal loop that is a little larger than usual, but I am not able to define compression of the loop in local areas. There is definite increase in the thickness of the individual folds throughout the duodenal loop as well as in the jejunum and well down into the ileum. The film taken at 30 minutes clearly shows so-called segmentation of the barium column in the lower jejunum and ileum. I can recognize no areas of localized narrowing or dilatation of small bowel.

Dr. Ingelfinger: There are no features characteristic of regional ileitis. If she did not have regional ileitis, did she have sprue? You would say this picture is consistent with sprue, I take it?

Dr. Wyman: Yes.

Dr. Ingelfinger: Sprue is a disease the nature of which is unknown. There are many characteristic features of sprue in this case—particularly the steatorrhea, the absence of marked fecal nitrogen loss, the downhill course and the suggestive traces of Addison's disease. The positive guaiac tests on the stools is an argument against sprue. In the absence of bleeding tendencies from prothrombin deficiency, I would not expect a positive guaiac test. However, the strongest point against sprue is this patient's failure to respond to all the vitamin B factors she received. If the patient had developed sprue *de novo* about a half a year before she entered this hospital and was then treated intensively with the various B factors that are listed, she should have shown some improvement. In sprue patients who have had the disease for years such treatment is relatively disappointing, but in a new case a more rapid improvement and some response to vitamin B-complex therapy would be expected.

A number of diffuse granulomatous conditions of the small intestine could give this picture: tuberculosis, sarcoid, Hodgkin's disease, nonspecific granulomas and a condition called Whipple's disease. To save time I shall confine my discussion to Whipple's disease. This case is a classic example of Whipple's disease,—if any condition of which there are only 15 or 20 cases reported in the literature can be said to present classic features,—with one exception that I shall discuss last. The patient's history is really too good. Whipple's disease is a granulomatous condition of the small intestine leading to stea-

torrhea and the accumulation of fat particles in the granulomatous reaction. Whipple's disease is characterized almost invariably by an antecedent arthritis; this patient had arthritis. Frequently there are pleural or pericardial reactions or chronic cough; this patient had pleurisy on two occasions. Many believe that Whipple's disease is a diffuse polyserositis or collagen type of disease in which the intestinal manifestations happen to be the major but not the only manifestations. The weight loss and pigmentation, the suggestions of Addison's disease without actual Addison's disease, the variable abdominal pains shifting around—all these you can find in Whipple's disease. The normal albumin-globulin ratio with low albumin and low globulin is characteristic. A number of these patients have had cholecystectomies—as in this case, without benefit. The stool examinations and positive guaiac tests are typical of Whipple's disease. So are the marked hypochromic anemia and the x-ray picture. To repeat, this patient is a classic case of Whipple's disease except for one thing —and here I raise the ugly head, although not in the usual sense, of sex. Alas and alack for me, this has been almost purely a male disease so far—and this patient was a female.

What about the patient's response to ACTH and cortisone? My guess is that the patient responded to the treatment but perforation in the lower small bowel took place and peritonitis ensued to account for the symptoms described. Why did she not have more reaction to the peritonitis? Patients given ACTH or cortisone apparently have an indolent type of intestinal perforation; her reaction is what you might expect if perforation occurred during ACTH or cortisone therapy.

I would be inclined to say, in spite of the reported incidence, that this woman had Whipple's disease or something fairly similar to it—a diffuse granulomatosis with the accumulation of fat and macrophages along the intestine, possibly pleural and pericardial adhesions and a peritonitis produced by intestinal perforation.

Dr. Walter Bauer: Would you want to include any type of connective-tissue disease in the diagnosis?

Dr. Ingelfinger: Scleroderma, lupus erythematosus and periarteritis nodosa may all present bizarre intestinal manifestations. As far as I know, steatorrhea is not so marked. In this patient the reason I did not consider scleroderma was that she apparently had neither skin changes nor esophageal symptoms. Although I am ready to make a diagnosis of intestinal scleroderma in the absence of skin changes, I think she ought to have had an esophageal component before scleroderma is considered seriously.

Dr. Wyman: I think that is a very important point.

Dr. Bauer: I know Whipple's disease from the literature; I have never seen a case, but I think Dr. Ingelfinger will agree with my belief that it is a very hard diagnosis to prove at the clinical level.

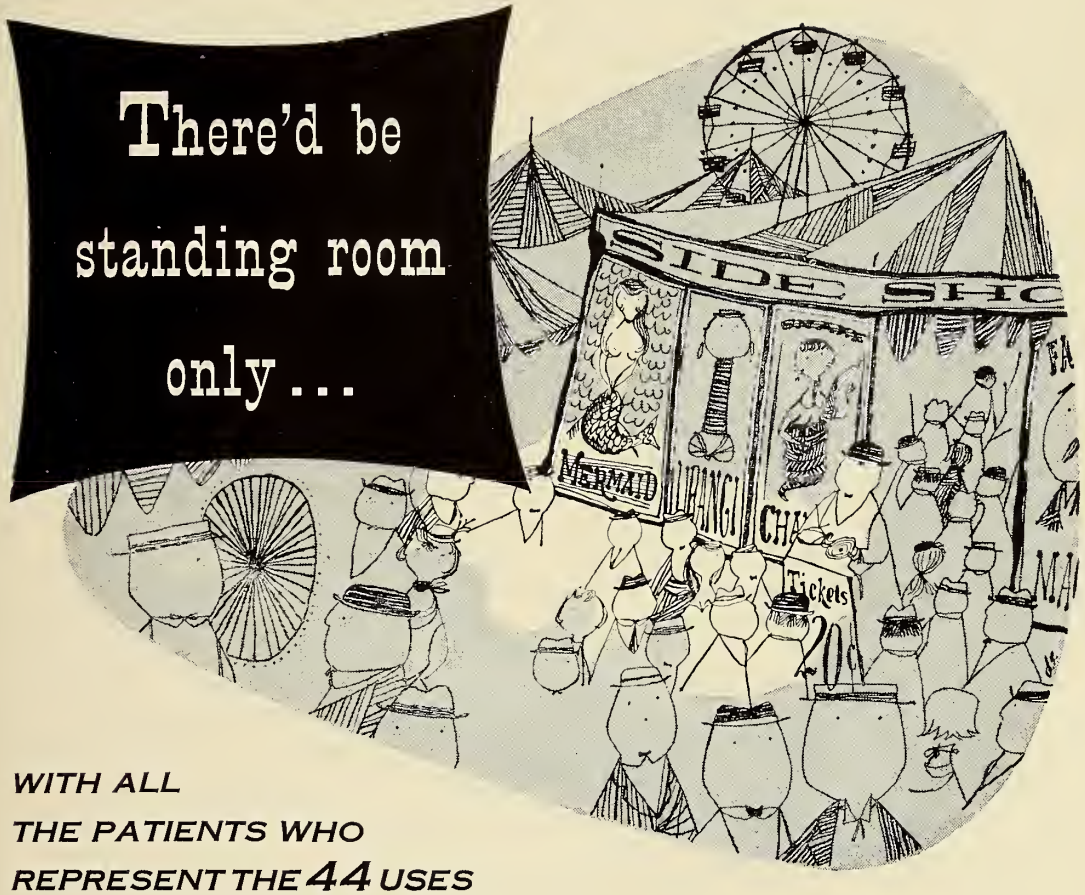
Dr. Ingelfinger: Absolutely. At the clinical level one can only make a diagnosis of diffuse granulomatous disease of the intestine as opposed to pancreatic disease and sprue.

Dr. Bauer: You will further agree that many of the cases of so-called Whipple's disease could just as well fall into the connective-tissue-disease group. In those cases in the literature without pathological proof one is rather hesitant to accept the diagnosis. Would you agree to that?

Dr. Ingelfinger: Yes; of course, many physicians believe that Whipple's disease is a variant of connective-tissue disease. Furthermore, many have defined Whipple's disease according to their own criteria.

Dr. Jones: I think Dr. Ingelfinger's discussion has been orderly and superb. We tried to follow the same reasoning, but I am sure the engine knocked somewhat harder than Dr. Ingelfinger's did, as he discussed the case here. The patient was sent into the hospital after a careful work-up with a tentative diagnosis of sprue. The pigmentation was extraordinary, and outside the hospital the attempt had been made to rule out adrenal insufficiency. We were confident that it was not adrenal insufficiency, and the response to ACTH pretty thoroughly ruled that out. I believed she did not have sprue for about the same reasons that Dr. Ingelfinger gave. The acute attack of severe abdominal pain and fever and chills worried us because we thought that a perforation had occurred and was partly obscured by the use of corticosteroids. Dr. Richard Warren saw the patient with me and we decided against operation. About ten days to two weeks later, while the patient was still on corticosteroid therapy we decided to operate; she had had so much pain that we wished to be certain that no local disease was causing partial obstruction that could be treated. After watching the patient for

There'd be standing room only...



WITH ALL THE PATIENTS WHO REPRESENT THE 44 USES FOR SHORT-ACTING

Nembutal®

FROM report to report on short-acting NEMBUTAL, these are the facts that you'll find the same:

1 *Short-acting* NEMBUTAL (*Pentobarbital, Abbott*) *can produce any desired degree of cerebral depression—from mild sedation to deep hypnosis.*

2 *The dosage required is small—only about half that of many other barbiturates.*

3 *There's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.*

4 *In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.*

All are sound enough reasons for your prescription to call for short-acting NEMBUTAL. How many of short-acting NEMBUTAL's 44 uses have *you* tried? Abbott



FOR BRIEF AND PROFOUND HYPNOSIS

try the 0.1-Gm. (1½-gr.) NEMBUTAL *Sodium capsule.*

1-186A

48 hours we were sure that she did not have peritonitis. The preoperative diagnosis was Whipple's disease. I might add that the stool-fat figure does not give the entire story. Actually the original stool fat was about 40 to 50 percent of the ingested fat. After the use of corticosteroids, this had dropped to a fairly normal figure —about 5 per cent.

Clinical Diagnosis: Whipple's disease.

Dr. Ingelfinger's diagnosis: Whipple's disease. Perforation of intestine with peritonitis.

Anatomical diagnosis: Whipple's disease.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman: I am sorry that Dr. Richard Warren cannot be here, but he sent a colored slide of the operative findings. Dr. Jones, you were at the operation; perhaps you would describe the small bowel.

Dr. Jones: The picture was extraordinary. From the ligament of Treitz to about the midileum the bowel was greatly thickened, but the thickening diminished toward the cecum; it was almost the equivalent of a cellulitis. All the lacteals were full and they could be clearly seen as creamy white pathways. All the highlights here (on slide) represent fat in the lacteals, and in some places it almost looked as if the lacteals had burst; there was a diffuse spread of fatty material underneath the serosa. In the root of the mesentery covering the drainage from the ligament of Treitz down to the midileum, the lymph nodes were between two and three times normal size; they were white. One was excised; when it was squeezed creamy material actually came out of it. There was also what we had suspected but had not proved—a chylous ascites; there was about a liter to a liter and a half of chylous fluid in the cavity. At operation a segment of bowel, including its mesentery and lymph nodes, was removed en bloc.

In the lower power view of an ordinary hematoxylin-eosin stain of the mucosa of the ileum, the epithelium is intact; scattered through the entire tunica propria are large monocytes with small nuclei and a lot of pink staining foamy cytoplasm. The section of the lymph node shows, in addition to the markedly distended lymphatics, these same large clear cells. Since the lymphatics seem to be filled with fat, the fat stain was the first special stain used, expecting to find these large monocytes stuffed with fat droplets. The fat stain did show some fat droplets but not in these big cells; most of it is between the cells, and there are many areas in the mucosa where there is no fat. In other words, most of the fat was interstitial. The distended lymphatics in the lymph nodes were filled with fat, and some monocytes contained fat droplets; this lipid droplet stained pink with Nile blue sulfate, indicates the presence of glycerides. A periodic-acid Schiff stain for polysaccharides shows that these foamy cells in the bowel epithelium and most of those in the lymph nodes are Schiff positive and do not contain fat. This is not a new finding. It was described a year or so ago by Black-Schaffer, who emphasized the fact that this material was not sudanophilic. He believed the material was a glycoprotein. Dr. Agustin Roque, of our laboratory, repeated the Schiff reaction after saliva digestion, and it did not change; hence this material is not glycogen. Whether it is a glycoprotein, as Black-Schaffer maintains, or some other type of mucopoly-saccharide has yet to be determined.

This brings up the question of the real etiology of this disease. Most of the investigation has been based on the idea that the fatty material in the intestines and the lymph nodes is due to an obstructive phenomenon and is related to the cause of the disease. Perhaps that is only a secondary phenomenon and the primary condition is dependent on a defect in the intestinal epithelium itself, leading to an inability to absorb fats. If we could find out exactly what is in these cells we might get a clue to the cause of the disease. It has been suggested by Black-Schaffer that the disease should be called not lipodystrophia intestinalis,—a name offered by Whipple originally,—but merely Whipple's disease. It is interesting to note that in the original paper, Whipple described these "foamy" cells as being "in the neighborhood of fat deposits." Although he emphasized the large fat vacuoles in the mucosa, submucosa and lymph nodes, he carefully stated that these "foamy" cells were free from fat. This observation seems to have been ignored.

Dr. Ingelfinger: In going through the literature one gathers that chylous ascites has been found particularly in females. Females who are not accepted by some physicians as cases of Whipple's disease actually had what this patient had—dilated lacteals and some chylous ascites. It is interesting that this is another female patient with prominent lacteals and chylous ascites.

Dr. Jones: I should like to make one com-

ment. Since operation the patient has done extremely well. The steatorrhea has nearly disappeared; on an intake of about 110 gm. of fat by mouth she loses only 5 gm. in the stools, which is essentially a normal figure. Corticosteroids were stopped after the operation and were withheld for a month. She had no further diarrhea, pain or distention, and the fat content of the stools remained at a low level. Since that time she has again been given corticosteroids for purposes of study. My belief is exactly like yours—that the idea that Whipple's disease is due to a blockage of the lacteals, with consequent inability to absorb fat and excessive loss of fat in the intestinal contents, is probably an incorrect or incomplete concept. I think it is much more likely that in this disease there is a disturbance of mucosal-cell activity in the intestine,—or possibly at a submucosal level,—with a striking change in intestinal function. Probably what we have done in this case is similar to what we have done in intractable sprue—that is, we have changed the mucosal-cell activity to the extent of restoring toward or to normal the function of these cells, which among other things have to do with the absorbing of fat. I think it is much more important than the mere absorbing of fat as such. I think it means an alteration of cell dynamics and function. Because the cell dynamics were abnormal there was an abnormal handling of fat, and it was caught in the lacteals in excessive amounts. It is altogether too early to predict what will happen to this patient, but I think it is the first time that a dramatic change in symptoms, signs and laboratory findings has been produced by any form of therapy. The depth of pigmentation has diminished so that she is much less dark now than eight weeks ago.

Dr. Castleman: It is possible that these mononuclear cells contain a lipoprotein, which would be Schiff positive but would not take any of the fat stains—a condition analagous to that of the Gaucher cell. The latter contains kerasin, a galactolipoprotein, which is also Schiff positive.

PRE-EMPLOYMENT AND PERIODIC EXAMINATIONS IN INDUSTRY

The scope of the pre-employment examination is being gradually widened. For many years, several of the larger mines in Arizona have screened applicants for employment by chest roentgenograms, and repeated this periodically. At present, one of the railway systems in the state secures a pre-employment record of conditions in the lumbar spine by a roentgenographic record. McGee of Wilmington, Del., writes on the subject of "Periodic Health Examinations in Industry" in the Delaware State Medical Journal, January, 1953. He discusses the type of physical examination, the use of clinical laboratory and x-ray procedures, and the interview between employee and examining physician, after the examination. While he discusses chiefly the periodic health examination during the course of employment, his remarks are pertinent to the pre-employment examination as well. W.W.W.

THE FASCIA LATA REPAIR OF HERNIAS

Edmund G. Laird, of Wilmington, Del., writes in the Delaware State Medical Journal for January, 1953, on "The Evaluation of the Gallie Fascia Lata Repair of Difficult Hernias." He gives credit for the development of this procedure to Gallie and Le Mesurier, starting about 1922. Among the authors quoted by him, the name of W. O. Sweek does not appear. Dr. Sweek was a strenuous protagonist for this operation, avoiding one of the drawbacks of the procedure,—the time element,—by using local anesthesia. In the original fee schedule of the Arizona Industrial Commission this operation was listed with a higher fee allowance than the usual operation for hernia. Gallie and Le Mesurier's papers appeared in 1922-24, which was about the time Dr. Sweek began to advocate the use of hernia repair by the use of fascia lata strips as sutures. W.W.W.

Park Central Barber Shop

JACK ALTMAN, Prop.
MILTON LEE

Phone CR 4-4551
Park Central Medical Building
550 W. Thomas Road
Phoenix

The PRESIDENT'S *Page*

The increasing world fracases since World War I have forced the United States into an armed preparedness now and tension threatens again to explode into a third World War in the sixth decade of the twentieth century. The numbers of veterans of military service increase from year to year. While it is proper that all deserving veterans receive consideration for their services to their country, post-World War I patriotic enthusiasm started a trend for tax exemptions and free medical care that we may have cause to regret unless a sensible attitude is adopted before the major portion of three generations have become veterans.

It is encouraging to note that the American Medical Association is carrying on a fight in Washington toward such a sane attitude. Bills are constantly being introduced with the intent to increase veterans' benefits without apparent thought of the added tax burden, bills which some congressmen dislike rejecting because of the vote gathering or vote trading possibilities. These bills now are carefully reviewed by your A.M.A. representatives in Washington for the information of members of Congress. It is proper to care for those with service-connected disabilities or certain chronic prolonged illnesses that produce an extreme if not impossible drain on the finances of a veteran's immediate family but when a veteran becomes a civilian with an income comparable to or better than average it seems insensible, for the sake of the national economy, to provide him with extraordinary health benefits that he can buy through various insurance programs. A further encouraging note was added in an address by Mr. Louis K. Gough, Commander of the American Legion, before the House of Delegates of the American Medical Association in June, 1953 in which he said in part: "There are those who want a change in the law authorizing hospital care of the non-service connected who are legally entitled on the basis of inability to pay and availability of beds. We do not! We insist that only a selfish interest impels those who seek to abridge the basis for providing this medical care so positively established by the existing statute. The American Legion, like the American Medical Association, is made up of citizens who pay taxes and would like to see the federal budget balanced and the tax load lightened. We are for economy and efficiency in the government — most of all in the Veterans Administation....."

Those of you who are veterans should take an interest in local veterans' organizations and help guide them in the health activities programs.

Edward M. Hayden, M. D.
President

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 AUGUST, 1953 NO. 8

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford
Darwin W. Neubauer, M.D. ..... Tucson

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

HOW MUCH ANATOMY DO YOU KNOW, DOCTOR?

The average doctor of medicine quits the didactic study of the Basic Sciences when he has established his practice. The pressure of practice with the essential clinical information which must be gleaned from reading at irregular and late hours are probably the chief factors in preventing most of us from keeping abreast of 'What's New' in the Basic Sciences. A certain amount of physiology, bacteriology, chemistry and pathology is learned from our current medical journals and by reading the pamphlets from reputable drug firms.

The most neglected of all of the Basic Sciences is anatomy. Although surgeons should constantly strive to broaden their knowledge of this subject, it is surprising how little general anatomy most surgeons know outside of the limited field in which they operate. Not only should surgeons be more adept in the knowledge of anatomy, but all of those in medical practice should have a good understanding of anatomical structures and their relations to each other to fathom diagnosis and treatment. Knowledge in most of the Basic Sciences can be grasped by seeing the printed word as the foundation of these sciences are based on proven or accepted theories that we have obtained from our earlier studies. Human anatomy, however, is a study that is based on structures and their relations which make the subject more difficult to retain. Many of the excellent articles on anatomy, usually published in surgical journals, are not read or not understood. To read and mentally visualize descriptions of an anatomical subject is often difficult although excellent illustrations accompany the description.

Until recently, the study of anatomy in the State of Arizona was limited to text books and postmortem examinations — neither giving the student the detailed information that cadaver dissection offers. Since the possession and dissection of cadavers has been recently made possible, we, as physicians, should take advantage of the opportunity afforded for the review and further study of anatomy. It is now possible for medical societies to obtain cadavers from the State Anatomy Board for study, providing all of the provisions of the Anatomical Laws are met.

At the beginning, it would seem wise that the Maricopa Medical Society, representing the northern part of the state, and Pima County Medical Society, for the southern portion of the

state, set up a small dissecting room and through proper channels obtain a cadaver for teaching purposes. Regular courses in anatomy could be conducted for doctors in each section of the state. No doubt those hospitals having nurses' training programs would welcome the opportunity to have anatomical material on their hands and might offer space for the vat and the dissecting table.

A recent conservation with Dr. Harvill, president of the University of Arizona, gave this writer the impression that the University would be willing to cooperate with the medical societies in establishing some teaching facilities if the proper interest were shown. At the present time, the University is teaching anatomy with success and has a small laboratory which could be used as a model for those medical societies which would be interested.

It would seem that after all of the effort that the State Medical Association put forth to father the laws allowing legal possession and dissection of human cadavers, a certain amount of interest should be taken in making use of the laws to further promote our knowledge and skill in the learning and knowing more of the science of anatomy.

INTERESTING TOPICS

ARTICLES IN RECENT JOURNALS WORTH A LITTLE TROUBLE TO GET AND READ

BORNHOLM DISEASE. Three articles in June 20, 1953 issue of British Medical Journal on this condition. I had to look it up in the dictionary, and find it is also called epidemic pleurodynia, epidemic diaphragmatic pleurodynia, devil's grip, epidemic myalgia, epidemic myositis. Quite a batch of writers collaborate in these articles. They will be quite enlightening for any who, like me, never heard of the disease before.

See also PLEURODYNIA OUTBREAK IN NORTH TEXAS,—by Risser, Texas State Journal of Med., June, 1953.

W.W.W.

———

INJURIES OF THE MUSCULOTENDINOUS CUFF OF THE SHOULDER. Donald W. Blanche, M.D., Los Angeles. California Medicine, July 1953.

"Injuries of the musculotendinous cuff are frequent and often cause long periods of disability."

"A great majority of patients recover good shoulder function under conservative treatment. Operation is not urgent." General practitioners, as well as industrial surgeons, will find this good practical reading.

W.W.W.

———

DISEASES AND DEATHS. Emil Bogen, M.D. and Edward M. Butt, M.D., Los Angeles. For those interested in causes of death from statistical viewpoint, this report of 40,130 autopsies on patients treated at Los Angeles County General Hospital over the thirty year period from 1918 to 1948, will be good reading. In the June and July issues of California Medicine, 1953. W.W.W.

———

THE PROBLEM OF PANCREATITIS. Robt. M. Zollinger, M.D. and Thomas Boles, M.D., Columbus, O. Rocky Mountain Med. Journ., July, 1953.

Pancreatitis is a common and serious disorder which cannot be ignored in everyday practice. Studies designed to assist in the diagnosis are discussed in this very timely article. Report based on study of 67 cases.

Also PANCREATITIS, by Massie, in Va. Med. Journ., of June, 1953. W.W.W.

———

HEMATURIA and PITFALLS IN UROLOGICAL DIAGNOSIS. Two different articles by two different writers (H. V. Munger, Lincoln, Neb. and Edwin Davis, Omaha, Neb.) In The Nebraska State Med. Journ. for July, 1953,—go very well together. One tells what to look for and the other tells what will be missed if we omit to look. W.W.W.

———

COMPLICATIONS OF PNEUMOPERITONEUM THERAPY. I. D. Bobrowitz, M.D., F.A.C.P., New York. Diseases of the Chest, July, 1953. This article almost got abstracted; it is just that good. The reason it didn't is because of the limited number of physicians who use pneumoperitoneum which "has taken an exceedingly important place in the non-surgical treatment of tuberculosis." Most chest physicians get this journal anyhow. Those who do not, should. W.W.W.

EVALUATION OF NEWER ANTICHOLINERGICS (Darstine, Pamine and Reltine). McHardy, Bechtold and Browne, New Orleans. Louisiana State Med. Journ., May, 1953.

W.W.W.

THE PROBLEM OF ADDICTIVE DRINKING. Roy E. Reed, M.D., Winston-Salem, N. C. North Carolina Medical Journal, June, 1953.

"Alcoholism is one of the most prevalent diseases in America." Out of the 65 million people who use alcoholic beverages, 4,000,000 are in the advanced stage of their affliction and are problem drinkers or alcoholics. How does one acquire the "disease" of alcoholism? The habitual use of alcoholic beverages by certain personality types. Alcohol is a depressant, the exact opposite to a stimulant. It depresses certain control functions of the brain and allows behavior and attitudes which are usually repressed. It is for this effect that alcoholic beverages are taken, —however specious the belief or argument otherwise may be. Two types of compulsive drinkers are described: (1) Neurotics or people who are definitely maladjusted before they start drinking; (2) the extrovert. (Note:—a very good short article dealing with alcoholism as a disease, which has come to be the medical viewpoint. If alcoholism is an addictive disease, and beverage alcohol is the primary cause, and alcohol is a narcotic depressant, it would seem logical that prevention of alcoholism would enter the picture of treatment by making it more difficult for such addicts to secure alcohol, rather than making it easier. Of course, that sounds crazy to all of the 65,000,000 who use alcoholic beverages. But maybe their thinking processes are slightly *depressed.*) W.W.W.

ANTIBIOTICS AND CHEMOTHERAPY IN INFECTIOUS DISEASES. Medical Annals of the District of Columbia, June 1953. Wm. J. Martin, M.D., of the Division of Medicine, Mayo Clinic, presents this subject in a rather unique way in the above mentioned journal. In about ninety terse paragraphs, each one numbered, he makes a simple statement about some antibiotic or about some infection and the antibiotics found useful in it. A few examples are given:

1. Four antibiotic agents in current use are capable of producing renal damage: (a) streptomycin, (b) polymyxin, (c) bacitracin, and (d) neomycin. Keep a close watch on the blood urea when using them; hesitate to give them in full dosage when the blood urea is elevated before their use.

9. Erythromycin is one of the last defenses against micrococci resistant to more commonly used antibiotics. It currently has life saving value. However, micrococci can become resistant to it. It is given in doses of 300 to 500 mg. by mouth every six hours.

29. Five clinical antities not uncommonly encountered require combined antibiotic therapy: (a) brucellosis, (b) enterococcal endocarditis, (c) bacteremia, (d) peritonitis, and (e) meningitis of undetermined cause. For the last three, aureomycin or terramycin is combined with streptomycin, except that for meningitis aureomycin is preferred to terramycin. And so on, for 102 statements. Very interesting reading.

W.W.W.

POTASSIUM METABOLISM. The Journal Lancet, June, 1953. This whole issue is taken up with Part II of a Symposium on Potassium Metabolism. Part I is in the May issue, which this reviewer does not recall having seen. Part II has fifteen articles. These and those in the May issue of The Journal Lancet, making up Part I,—cover a recent Symposium on Potassium Metabolism, held at the University of Minnesota. In "The Pathology of Potassium Deficiency" by Follis, the importance of this study is suggested by the statement, "potassium is one of the 17 or 18 elements which have been shown to be essential for the integrity of the mammalian organism, and is quantitatively the most prominent intracellular cation."

Maybe too heavy for summer reading, but good for a profitable evening along about October or November. W.W.W.

FARMER'S LUNG. Studdert,—British Medical Journal, June 13, 1953.

This author describes a clinical condition which he says is "conveniently named 'farmer's lung'." This he claims is a non-specific lung irritation following exposure to mouldy vegetable dusts. He also says, "the currently quoted view that farmer's lung is an actual fungous infection of the lungs does not bear close examination. There is a close similarity to coniosporiosis, byssinosis and diffuse granulomatos pneumonitis. (NOTE: To this reviewer he has not made out a good case for his contention that this condition is not an acute fungous infection.—W.W.W.).

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

The Californians are shore exposed to SCIENCE! One section of a recent Los Angeles daily paper which we saw contained the following medical items,—

1. Announcement of a new 'arm prosthesis' clinic, to be opened by a medical school. . . . 2. A possible 'Dope Clinic' for addicts, with the minimum dose to cost 15 to 20c. . . . A story of the total synthesis of cortisone, with use of the undiluted chemical terms.

If you have a friend who has a friend in YELLOW FEVER territory, it might pay to tell him/her how one may now obtain vaccine. . . . The U.S.P.H.S. reports that the Rocky Mountain Labr., until now the sole American source, has stopped production. All orders now are to go to the National Drug Company, Philadelphia. . . . The W.H.O. designates and publishes a list of vaccination centers, and various U.S.P.H.S. facilities, Defense installations, and state health departments are included.

Some of the non-medical prints have carried stories about a dental convention at which a DENTIST-PSYCHIATRIST (and it doesn't say which he was first) moaned about the unnatural relationship between patients and dentists. "They hate us", he said. "We suffer psychically because people are against us, and tension results". . . . The psychiatrists (simple, not dental) are also wallowing in self-pity. A mid-western medical journal tells of the trusting N-P who is not hated to start with, is often hated as the patient improves, and sometimes has to make the patient hate him. . . . We should be nicer to dentists and psychiatrists.

The N. Y. City Dep't. of Health urges that, in the absence of a biochemical test for cancer, MASS X-RAY SURVEYS are the BEST means of detecting INTRATHORACIC NEOPLASMS. . . . Dr. Churchill of San Diego, after surveying the results of a single mass survey several years ago, says people over 40 years of age need films at least every 6 months to be safe from new growths. And the films require expert reading, too.

How big and how pure does a physician have to be before he is beyond reproach? The size is limitless, apparently, if one is to judge by what happened to Dr. Loyal Davis of Chicago. . . . Almost all of us have heard his name, or even been in contact with his teachings, research or writings. He is professor of surgery at Northwestern, editor of S.G., and O., chief of surgery at Passavant Hospital, and a member of the board of regents of the American College of Surgeons. . . . Not a likely target for charges of unethical conduct and disloyalty of his profession, yet he was so accused and nearly convicted by the Chicago Medical Society. . . . Dr. Davis took a public stand against fee-splitting. One hundred and fifty physicians petitioned that he be tried by the Society for unethical conduct in obtaining publicity, giving misleading information, etc. A committee voted him guilty. The council approved the action, then tabled it, then rescinded approval. . . . The A.C.S. backed him up, as did a large number of newspapers, but it goes to show how difficult it may be for an honest man to walk an honest path in public without coming a cropper on a roadblock. . . . One also never knows how much of a part personality or social relationships have to do with such a ruckus.

BOOK TITLE OF THE MONTH,—by J. L. and C. B. de Courcy of Cincinnati, "Pheochromocytoma and the General Practitioner." . . . Sounds like the ancient story of the attitudes which newspapers in three different European countries took towards an elephant. . . . Our own tabloid would say, "Pheo and the G.P."

The 'WOOD LIGHT', invented by Robert Wood at Johns Hopkins 50 years ago, has become an important diagnostic tool. It consists of an ultraviolet light with a nickel oxide filter to remove visible light rays, but there is a residual blue light. . . . When used in a dark room, many substances are found to have a characteristic fluorescence. Objects are blue, due to the reflected blue light, and sometimes show fluorescence from the U-V rays. . . . The normal skin is purplish-violet. Freckles, scars, and blood vessels are a purplish-brown. Medications, deodorants, cosmetics may produce a wide range of colors. Natural teeth are pearl white, while false teeth are violet or lemon green. . . . Vitiliga areas are white. Microsporons (on hair or clothes) fluoresce a vivid light green. Tinea lesions fluoresce as a powdery golden yellow, etc. . . . The most useful findings are in the diagnosis of squamous cell carcinoma. The ulcerated areas fluoresce a live-coal red in the midst of the deep violet area. Other ulcerations, carbuncles, and (most importantly) basal-cell epithelioma DO NOT FLUORESCE. . . . There are some fine illustrations in an article by Ronchese of Boston in 'Medical Radiography and Photography' by the Eastman Kodak Co. (Vol. 29, No. 1, 1953).

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix August, 1953

Question QUIZ
Do you know the answers?

Q. What plans are now offered by the Hospital Benefit Association?

A. At the present time, the Association offers a choice of three plans: $5-a-day plan and $10-a-day plan (with or without surgery); and the Surgical Plan, based on Arizona Industrial Commission Schedule of Fees.

Q. Under the Surgical Plan may a doctor give emergency treatment for an accident or injury without hospitalizing the patient?

A. Yes. In case of an accident a doctor may be paid for services given at the scene of the accident, in the home or at the doctor's office, within 24 hours after the accident.

Q. How much red tape is involved in submitting a claim by the doctor?

A. None. The Association sends the doctor a short bill form, giving the diagnosis, etc.

Q. Can doctors speed up processing claims?

A. Yes. By promptly returning the short bill form to the Association.

Q. What per cent of the claims submitted to the Hospital Benefit Association require long-claim forms and hospital reports?

A. Approximately 3% require further information to establish date of onset of the illness (only illnesses that actually begin or are diagnosed 30 days after effective date of membership are eligible). Accidents are covered from the first day of membership.

Q. Why does the Hospital Benefit Association have such a low rate of questionable claims?

A. The low rate is due to the fact that enrollment is handled properly by well-trained personnel. Members know just what benefits to which they are entitled.

Hundreds Of Arizonans Join Hospital Benefit Association On Doctors' Recommendations

The Hospital Benefit Association is especially pleased to find out that many new members join the organization on the recommendation of their doctors. Furthermore, it is found doctors often recommend the Association to individuals who are not eligible for group enrollment, because they can become HBA members easily and quickly — at any time. Then, when the doctor finds a member-patient must be hospitalized, he need not hesitate because of working a financial hardship on his patient.

Socialized Medicine Foe

The Hospital Benefit Association has long been active in the fight against socialized medicine—or compulsory health insurance.

The Association fought this type of socialistic government intervention with educational advertising in newspapers and on radio. The campaign was so effective it received a special commendation from the American Medical Association.



"We were in the same hospital together —too bad you turned out to be a girl."

Surgical Plan Benefits

Many features in the HBA Surgical Plan are very important to the doctor. For example, members are allowed to select any physician (M.D.) — licensed to practice medicine and surgery. The Association makes no attempt to set the surgical fee, but leaves this important decision to doctor and patient. The actual cost is paid by the Association up to the amount shown in the schedule of fees which is the same used by the Arizona Industrial Commission. And naturally, doctors appreciate the Association paying the bills directly to them, without delay. Paper work, too, is kept to a minimum. HBA forms are simple, quick and easy to fill out.

Office and Home Emergency Care

Provision in the HBA Surgical Plan is made to pay the doctor for emergency treatment of accidents at the scene of the accident, in the doctor's office or in the home. Surgical fees are paid for dislocations, wound repairs, fractures — including X-rays, if treatment is made within 24 hours of the accident.

Doctors also report the fact that patients make a speedier recovery when they are not worried about bills. Membership in the Hospital Benefit Association gives the patient security and peace of mind.

If most physicians were asked to name a few states which would probably license chiropractors, they would likely include New York. . . . They'd be wrong, since New York is one of the few NOT licensing that group, and they have recently defeated another such measure.

'TRUTH SERUM' is a newspaper term which is supposed to be mysterious, and usually is misunderstood by the public. . . . It is sodium amytal interview, with the drug being given intravenously. Alcohol and carbon dioxide have been used to get people to talk in past years (and centuries). . . . The Medical Annals (D.C.) has analyzed the usefulness of the method. Medically it is a useful adjunct to psychiatric study, but it cannot replace such an investigation. Legally, it is highly unreliable, since 'truth' is the objective, and since the subject may tell truths, untruths, or fantasy. . . . Only the confessingly inclined will talk, and the same information can usually be obtained by suitable questioning.

The one-sentence REVIEWS OF CURRENT MEDICAL LITERATURE by Dr. Chauncey Leake of Galveston are amazingly diverse in topic and origin. In the Clinical section, for instance, one sees "S. Rowlands reviews isotopes as aid to diagnosis (ED IN MED J). . . . DA Sadowsky & Co. concludes smoking is not etiologically associated with lung cancer (J NAT CANC INST). . . . JT Scales & Co. discuss design of cuirass respirators (LANCET). . . . CC Sturgis offers HYPERSPLENISM: A CLINICAL EVALUATION (CC Thomas, Springfield, Ill.). . . . S Wieden confirms (MED J AUSTRAL) HG Kunkel's zinc sulfate turbidity test for liver disease (GASTRO-ENTEROL)". . . . Makes one wish one could read. They won't like that comment on smoking and cancer in St. Louis, however.

Alameda County in California has been a recent leader in MEDICAL IDEAS, especially as they apply to a widened coverage of care, better collections. . . . Less is known about a Public Health program which worked, but in reverse. They had a mass-immunization of school children until five years ago; abandoned it in favor of an educational program; and now find that the parents really have an interest and know what the kids need and get. 80% of kindergarten and 70% of other children below 16 years are immunized, and both the health clinics AND the private physicians do a thriving job. . . . They believe that the results are now better.

An association between Charles Pfizer & Co. and Dr. Payne of Howard University is quite understandable — drug supply-and-demand for research. . . . The connection of those two with the Wall Street Journal might seem more obscure, but it really isn't. The Pfizer Company is listed on the stock market. It has announced the production of Viomycin. Dr. Payne did the preliminary work. Any new money-making product is of interest to the W.S.J. Selah!

One, of Twenty-One Resolutions Adopted by the Arizona Pharmaceutical Association at their recent Convention

WHEREAS through the courtesies of R. Lee Foster, M.D., Editor-in-Chief of ARIZONA MEDICINE JOURNAL, the official publication of the Arizona Medical Association and Mr. J. N. McMeekin, publisher of the said journal, the Publishing Committee of the Arizona Medical Association made available to the Arizona Pharmaceutical Association a page each month in their publication and

WHEREAS the opportunity of disseminating the views of Arizona pharmacists through this medium, to the physicians of our state has been of great value to our profession

NOW THEREFORE BE IT RESOLVED that the Arizona Pharmaceutical Association express its thanks to Dr. Foster, Mr. McMeekin, and the members of the publishing committee of ARIZONA MEDICINE for the opportunity and favor and extend to them and to the members of the Arizona Medical Association the use of the pages of our own publication, the ARIZONA PHARMACIST whenever they may desire its use.

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The 31st annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held on August 31, September 1, 2, 3 and 4, 1953, inclusive, at the Palmer House, Chicago, Ill.

Scientific and Clinical sessions will be given on the days of August 31 and September 1, 2 and 3. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association.

Full information may be obtained by writing to the executive offices, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

BOOK REVIEW

Morbus Alzheimer and Morbus Pick: A Genetic, Clinical, and Patho-Anatomical Study, by Torsten Sjogren, Hakon Sjogren, and Ake G. H. Lindgren. Acta psychiatrica et neurologica. Supplement 83. 152 pages, with 11 illustrations and 14 tables. Ejnar Munksgaards Forlag, Norregade 6, Copenhagen K, Denmark, 1952.

This monograph represents a most lucid exposition of the genetic, clinical and pathologic features of Alzheimer's Disease and of Pick's Disease, conditions which are commonly the cause of presenile dementia. 80 cases were studied and extensive field investigations revealed 30 secondary cases. 36 were verified by histopathologic examination, 26 by pneumo-encephalography, and 15 by clinical examination only.

I. *Genetic features.* There was apparently no intermarriage among the families. An estimate of the empirical prognosis in the risk period of 40-70 years was 16% if one of the parents was affected, and 2.5% if neither parent was affected. Alzheimer's Disease (presenile sclerosis) showed a greater chance of a multifactorial type of inheritance than Pick's Disease. The differences between the two diseases were apparent only on pathologic examination. The average life expectancy was approximately 50% of that of the same age group in the general population. There were a few more cases among women, but not enough to be statistically significant. In general the incidence of such disorders in later years of life is greater than is usually realized.

II. *Clinical features.* The two diseases are more similar on clinical examination of patients than they are dissimilar. Lack of spontaneity was predominant (15 of the 18 cases of verified Alzheimer's Disease, and 8 of 13 verified cases of Pick's Disease) Aphasia, agnosia, apraxia, hypertonus and facial paresis were common in Alzheimer's Disease. Dementia was severe in both types. Convulsions were more common in Alzheimer's Disease. Hypertonus and gait disturbances were uncommon in Pick's Disease.

III. *Pathologic features.* The cerebral atrophy was diffuse in Alzheimer's Disease and circumscribed in Pick's Disease. Changes in the basal ganglia could usually be found in Alzheimer's and rarely (one case) in Pick's Disease. Argentophile plaques and fibrillar condensation were found extensively in Alzheimer's, but not in Pick's Disease. Ballooned cells were present regularly in Pick's, but no in Alzheimer's disease. 3 of the cases of senile patients with Pick's disease also showed the histologic changes of senile dementia.

The illustrations are well chosen and clearly presented.

John R. Green, M.D.
Phoenix

ANOTHER PITFALL IN ANTIBIOTIC THERAPY

The development of antibiotic therapy has been the major advance in medicine in the present generation. As the number of antibiotics has multiplied and their specific effects become better known, many drawbacks have developed. One of the unexpected complications has been the reported severe and sometimes fatal enterotoxemia following the administration of terramycin or aureomycin. This effect is not due to hypersensitivity, but to the very efficacy of the drugs in destroying the bacterial flora of the intestines. Following the administration of terramycin or aureomycin, a decrease in the total number of bacteria in the intestinal tract occurs. The Escherichia coli decrease more rapidly than do the organisms of the Proteus group, so that by the end of the fourth day Proteus is predominant in the stool. At the same time the strains of Micrococcus pyogenes (Staphylococcus) which are resistant to these drugs (30% of all strains) will begin to increase. Not all patients have resistant strains of Micrococcus pyogenes present, but those who have are in danger from the potent enterotoxin which this organism produces.

Should a choleriform syndrome develop following the administration of these antibiotics, this represents a bacteriologic emergency. Immediately on the appearance of a diarrhea in a patient receiving terramycin or aureomycin, the stool should be immediately examined for Gram-positive cocci. If they are present in any numbers, these antibiotics should be immediately stopped. This may be sufficient to bring about a suppression of the Micrococcus pyogenes. If not, erythromycin should be administered. This drug is suppressive to practically all strains of Micrococcus pyogenes and has little effect on Escherichia coli.

(Taken from report of material presented before the Minnesota Society of Clinical Pathologists by Dr. P. T. Sloss a fellow in Pathology of the Mayo Foundation. More details in the Section on "Laboratory Aids to Medical Practice," Minnesota Medicine, January, 1953). W.W.W.

Arizona Pharmaceutical Page

THE MEANING OF PHARMACY

Over the past century American Pharmacy has come to mean different things to different people in our changing economic order. Pharmacists know that the retail drug store is both a professional and a commercial institution. They are constantly seeking ways to better and strengthen it from a professional point of view, while making secure its economic foundation.

It is interesting to note that prescription practice has been constantly growing as the people become more and more health conscious. Medicine today has become very complicated by its nature and must be handled by those thoroughly trained in its knowledge.

Every day of the year nearly 23,850,000 persons visit one of the 53,000 pharmacies in the United States alone. Some, of course, make leisurely visits just to chat and for minor purchases entirely unrelated to medical care. Millions of others, however, come with prescriptions to be filled. Just as they have confidence in the physicians who have prescribed the medications, they must have confidence in the pharmacist who compounds it and in the quality of the ingredients he uses.

The public subsidizes the retail pharmacy by using it as a source of a variety of commodities and services related and unrelated to medical care, so that it can be assured of pharmaceutical services at reasonable costs, if, as, and when needed. In this subsidization we find it possible to offer pharmaceutical services by thoroughly trained licentiates in all areas of population, thereby making available those services when required by the physician and the patient.

Pharmacy today has little to do with the outmoded drugs such as pipsissewa, elecampagne, blood root or balm of gilead buds. It gives little space to Blauds pills, opdeldoc and vinegar of squill. There is little need for Bateman's drops and pills of aloes and myrrh. Pharmacy today deals with the everchanging medications developed by our immense laboratories, for the use of the profession in treating its patients. It is being based upon the pharmaceutical measurement of drugs and not upon the polygot mixtures of folk lore medicaments.

And the price. That is a question that is bobbing up to torment all those who have to deal with medical care. In the Unani Hospital in Hyderabad City, India, under ancient time-tested healing methods, the doctors of that area prescribe such rare potions as a combination of rubies, gold, emeralds, silver, musk, ambergris and pearls. It is known as "jawahir muhra" and it sells for $65.00 a treatment. It is reputed to be excellent for heart disease.

The hospital itself is no mumbo-jumbo affair. Instead it is a modern, well equipped and immaculately clean building. The doctors practicing there argue that the treatments they use have been used successfully for centuries and, although they cannot understand why they work, they firmly believe in the results obtained. The antibiotics, the hormones, the anti-histamines and all the other new drugs we have in common use in Arizona today may be expensive but certainly it is cheaper by far than the top treatment in India.

Prescription pricing has been based upon the merchandise cost, the cost of containers and equipment and the cost of the time of the pharmacists dispensing the medication. Many times the doctor is called upon to quote a price to a patient. In doing so he might inadvertantly fail to take into consideration the time element of dispensing. Most of the pharmacies in this state have been following one or another of recognized prescription pricing schedules so that the patient may receive his medication for a price based upon a reasonable schedule of operational costs.

Republican "Freshmen" On Senate Health Subcommittee

The three Republicans on the new Health Subcommittee of the Senate Labor and Public Welfare Committee all are first-termers. Chairman is William A. Purtell, Hartford, Conn., industrialist, who long has been active in community and business groups. Other Republicans are Barry Goldwater of Phoenix, Ariz., and Dwight Griswold of Scottsbluff, Neb. The Democratic minority is represented by two men experienced in health legislation, Lister Hill of Montgomery, Ala., and Herbert Lehman of New York. Under the new procedure, the subcommittee no longer will have its own staff.

A.M.A. Washington Letter

Keep Plugging "Your Doctor" Film

Local medical societies can improve their "public relations rating" in the community by booking the "Your Doctor" film for non-theatrical showings at society meetings or to PTA's, schools, churches and other groups interested in health. Sixteen milimeter prints of this 15-minute sound film now are available on loan from Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20, N. Y. Produced as a documentary, this film points up ways in which the medical profession has helped to bring better medical care to everyone. During 1952 more than 12 million Americans viewed the movie in over 5,000 commercial theaters throughout the country. It is hoped that medical societies will continue to promote the film locally.

A.M.A. News Notes

In very special cases

A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N.Y. 54

TRUSSES — SURGICAL SUPPORTS

GROVE'S

Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

OFFICE FOR RENT

Available September 1st

1200 sq. ft. floor space, asphalt tile throughout, York Refrigeration, central heating, refrigerated ice water, intercommunicating system, private parking lot, lawn service. $250.00 per month.

Inquire 301 W. McDowell Rd.

Phoenix, Arizona

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

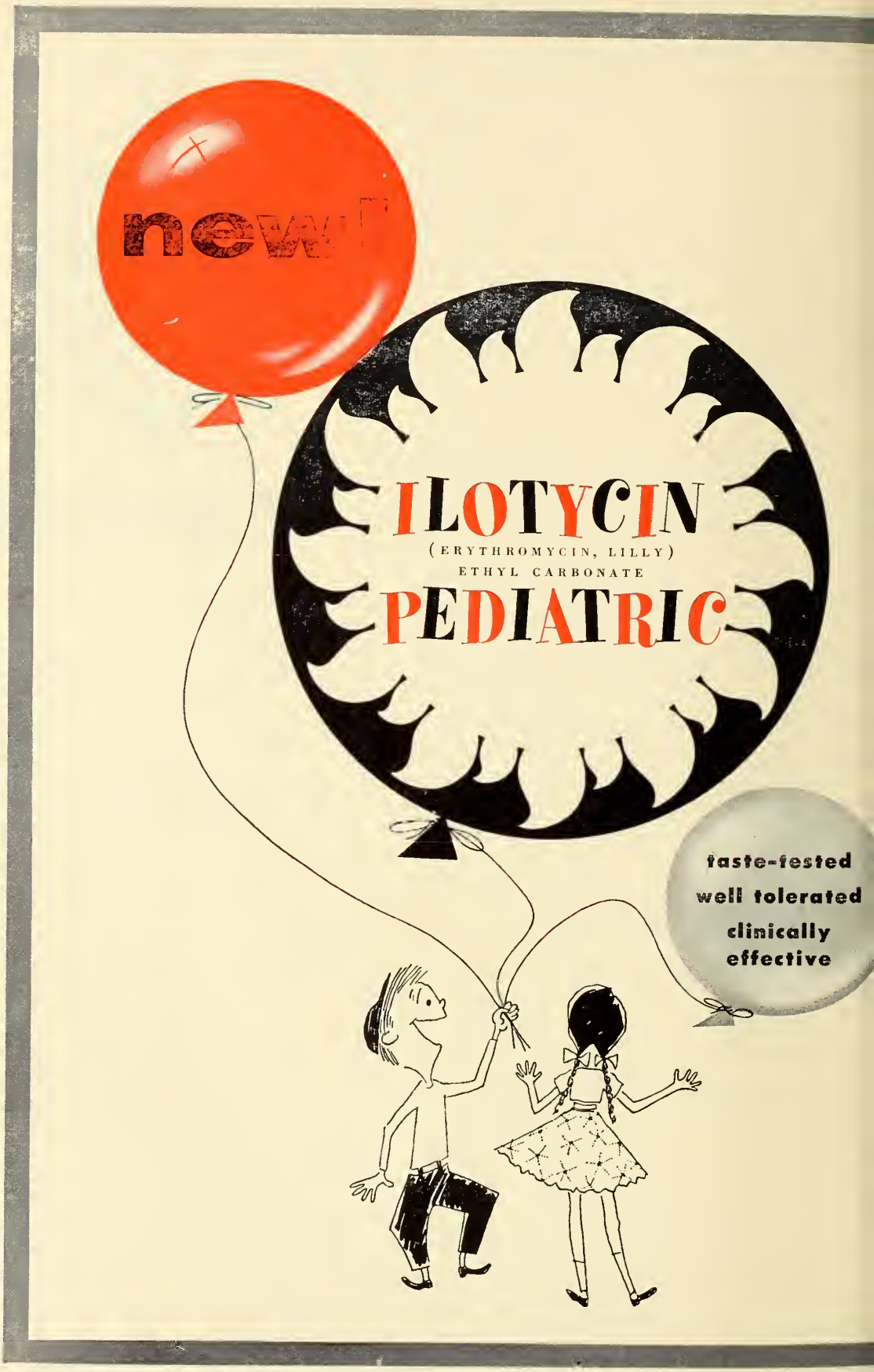
Don't Forget

SOUTHWESTERN MEDICAL SOCIETY MEETING

El Conquistador Hotel — Tucson, Arizona

October 29, 30, 1953 • Six Outside Speakers • Dinner Dance

Golf Tournament • Football Game


new!
ILOTYCIN
(ERYTHROMYCIN, LILLY)
ETHYL CARBONATE
PEDIATRIC
taste-tested
well tolerated
clinically
effective

tops for tots

For infections in children caused by staphylococci, streptococci, or both . . . the palatability, low allergenicity, and relative freedom from gastro-intestinal upsets make 'Ilotycin,' Pediatric, a prescription favorite. Youngsters (with an occasional incorrigible exception) take it without a struggle. "Tablet-shy" oldsters like it, too.

Formula:

Each 5 cc. (approximately one teaspoonful) contain 100 mg. 'Ilotycin' as the ethyl carbonate.

Dosage:

15 pounds—1/2 teaspoonful every six hours

30 pounds—1 teaspoonful every six hours

60 pounds—2 teaspoonfuls every six hours

How Supplied:

Each package consists of one bottle containing 1.2 Gm. 'Ilotycin' as the ethyl carbonate in a dry, pleasantly flavored mixture; 45 cc. of water are added at the time of dispensing to provide 60 cc. of an oral suspension. After mixing, the suspension is stable for two weeks at room temperature.

Lilly

THE ORIGINATOR OF ERYTHROMYCIN

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY COMPANY

DWIGHT McCLURE GEORGE B. LITTLEFIELD W. J. WINGAR
Telephone ALpine 3-1185 407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative
617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.
We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS
422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.
228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.
333 N. 7th Ave. — Phoenix, Arizona
ALpine 3-5175

Woman's AUXILIARY

PUBLIC RELATIONS

The Public Relations Round Table Discussion held June 5, 1953 in New York, as part of the Annual Convention of the Woman's Auxiliary to the American Medical Association, was one of the most important of the convention's sessions. It was well attended, chiefly because it is at such thought provoking meetings that the real value of the convention, namely an interchange of ideas, is paramount.

The panel was moderated by Mrs. Neil W. Woodward, chairman of the National Public Relations Committee. Under her direction, members of certain constituent auxiliaries from throughout the country, told of the ways and means they handled their own, local, public relations problems. Arizona was amongst those represened on the panel.

The methods used to create better goodwill and understanding between the medical profession and the community, were as varied and numerous as were the speakers. The common denominator present in all methods, however, was the same. Health education and service to the community, were the back bone of every plan. As all who have done auxiliary work in Arizona know, this is nothing new. We have pushed forward on these two fronts remarkably well in the past few years.

However, as individuals, a review of our obligations as suggested by the National Auxiliary in regard to community service, might well be in order. There are certain things that we cannot ignore any more than we can the jangle of the telephone, much as we'd so like at times. When we married doctors, we assumed the responsibility of sharing the problems confronting them.

In the horse and buggy days, no one made much fuss about community service. The good doctor and his wife *lived* a life of community service. As times have changed and as the doctor's wife is no longer obliged to take eggs or a chicken in lieu of payment for her husband's services, other duties are expected of her.

A good Public Relations program is one of the main endeavors of the medical profession. Being wedded to the profession, it becomes her goal, too. There is no better way for a wife to maintain the prestige of her husband than by promoting the advancement of health and health education in her community. In other words, she will serve her fellow men and in so doing serve a great humanitarian profession.

Working through her auxiliary, she will need first of all to be an informed member. To enable her to act as an interpreter of medicine's aims and problems, her own self education is a must. With such an education every daily contact can prove to be extremely valuable in the Public Relations field. Whether the contact is as a member of a civic or religious group, or simply a few words with the grocer or milk man, the opportunity is there. Too many of us bypass such opportunities by the simple expedient of ignoring them.

The final and positive step in the development of good Public Relations is service. Giving of her time for the betterment of her community usually brings its own reward. In addition it brings about the much sought after, mutual understanding between the community and the profession.

There are so very many ways in each locality that the doctor's wife can serve. The choice is wide and the obligation in ours. Your willingness and leadership are needed. Only by assuming our obligations can we expect the respect and confidence we desire. Let us all stop procrastinating and meet our responsibility.

Mrs. John K. Bennett

Delegate to the Annual Convention of the Woman's Auxiliary to the American Medical Association.

WANTED PRACTITIONER

Eye, Ear, Nose and Throat, In Arizona,
locum tenens, this fall, 3 months, must be qualified
to do eye surgery. Opportunity for:
1) ample income; 2) determine whether you want
to live in the Southwest; 3) associate practice, or
4) start your own practice.

Write % Arizona Medicine
424 Heard Bldg. – 112 N. Central
Phoenix, Arizona

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE NEWS RELEASE

A three-day postgraduate course in "Recent Advances in Infectious Diseases" will be given at the University of Colorado School of Medicine on August 17, 18 and 19, 1953. This conference will be sponsored by the Department of Medicine and the Office of Graduate and Postgraduate Medical Education and will be of particular interest to general practitioners and internists.

Among the topics of special interest will be the rickettsial diseases prevalent in the Rocky Mountain States and the diseases of virus etiology involving the respiratory, digestive and nervous system. Emphasis will be placed upon recent advances in diagnosis and treatment.

Two of the outstanding guest lecturers will be Dr. William M. M. Kirby and Dr. Herald R. Cox. Doctor Kirby is presently Associate Professor of Medicine at the University of Washington School of Medicine, Seattle, Washington. He received his M.D. degree from Cornell University Medical School and interned in medicine at New York Hospital. His residency training in medicine was received in the Stanford University Hospitals and later he was visiting investigator for Rockefeller Institute for Medical Research. Doctor Kirby is a member of many medical and investigational societies. He is the author of many papers concerning the antibiotics in infectious diseases.

Doctor Cox is Director of Viral and Rickettsial Research, Lederle Laboratories Division. He was formerly with the USPHS, Rocky Mountain Laboratories in Hamilton, Montana. He is known for his work in developing vaccines against typhus and, more recently, for his work in rabies and poliomyelitis.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 10th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 10th OF THE MONTH.

Material arriving after that date will be published the following month.

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist



Arizona Medicine

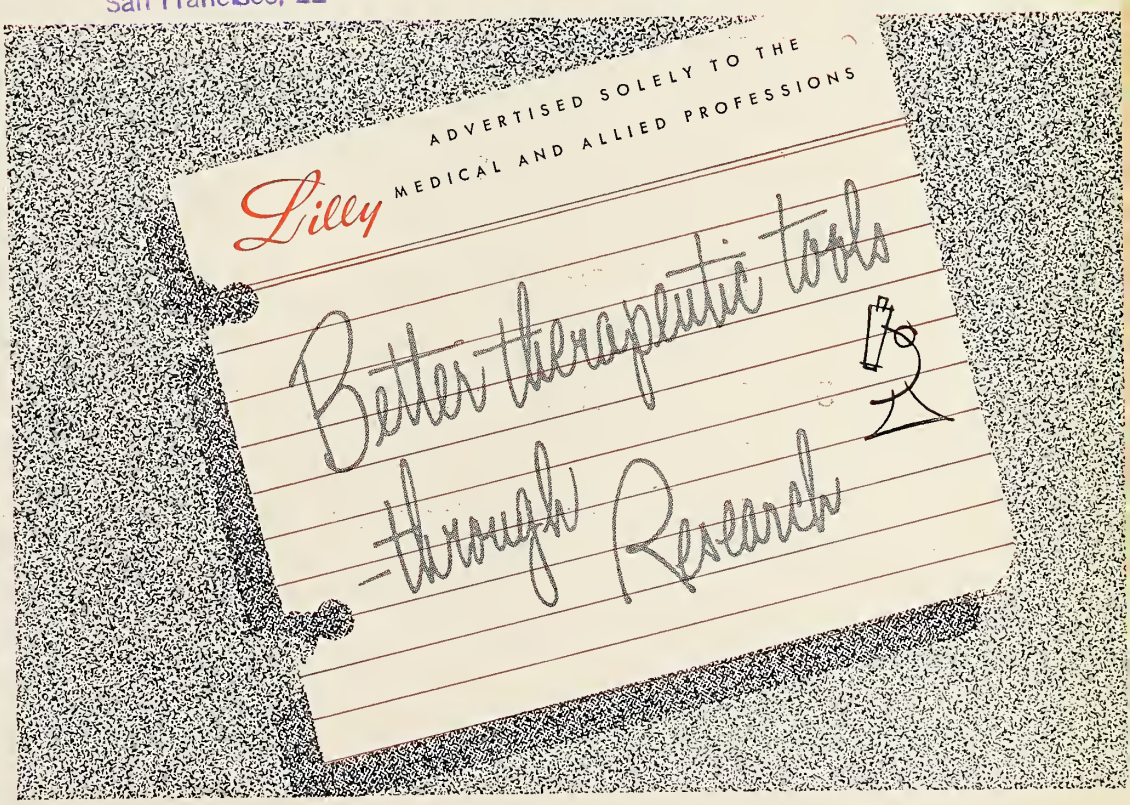
Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA

U. C. MEDICAL LIBRARY

SEP 25 1953

San Francisco, 22



useful

throughout

OPERATIVE SCHEDULE

the

operative

schedule

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 9 SEPTEMBER, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

DEVELOPMENT OF THE MEDICAL USE OF RADIOISOTOPES 311
Paul C. Aebersold, Ph.D., Oak Ridge, Tennessee
BREAST LESIONS AS SEEN IN THE PHYSICIAN'S OFFICE 316
Herbert H. Davis, M.D., Omaha, Nebraska

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 320
Drs. B. P. Frissell, M. W. Merrill, J. Moore, Phoenix, Arizona

PRESIDENT'S PAGE

1954 ANNUAL MEETING 334
Edward M. Hayden, M.D., President, Arizona Medical Association

THE SECRETARY'S MESSAGE

LIMITATIONS IN THE USE OF GAMMA GLOBULIN IN POLIOMYELITIS 335
D. W. Melick, M.D., Secretary, Arizona Medical Association

EDITORIAL

IT'S AN ILL WIND 337

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 340
Guillermo Osler, M.D.
THE PUBLIC HEALTH PROGRAM IN ARIZONA 343
Royal W. Rudolph, M.D., Chairman, Arizona State Board of Health
FELLOWSHIPS FOR BASIC RESEARCH IN ARTHRITIS 332
STANFORD UNVERSITY SCHOOL OF MEDICINE 332
SUPPLEMENT TO THE LIST OF FILMS CLEARED FOR TV USE 332
COLORADO HEART ASSOCIATION 338
24th ANNUAL POSTGRADUATE SYMPOSIUM ON HEART DISEASE 338
LEGISLATION ON REGISTRATION FEE 338
MEETING NOTICES 338
NARCOTIC PRESCRIPTIONS 339
Arizona Pharmaceutical Page
GAMMA GLOBULIN 345
RECOMMENDED READING 356
WILL X-RAY BENEFIT IT? 347
A.M.A. CONTRIBUTES $5,000 TO NETHERLAND DOCTORS 347
JOINT COMMISSION ON ACCREDITATION OF HOSPITALS 349
REFORT ON HEALTH NEEDS OF THE NATION 350
HOUSE ACTION ON FEDERAL MEDICAL SERVICES 350

WOMAN'S AUXILIARY

A LETTER FROM THE PRESIDENT 351
Mrs. George S. Enfield, Phoenix, Arizona

DIRECTORY

LABORATORIES XXI
SANATORIUM DIRECTORY XXII
DRUGGISTS DIRECTORY XXVI
PHYSICIANS DIRECTORY XXIX

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 — 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Milton C. F. Semoff, M. D., Tucson; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: John R. Schwartzmann, M. D., Tucson (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; William B. McGrath, M. D., Phoenix; Zenas B. Noon, M. D., Nogales.

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Mental Health ..... Mrs. Delbert Secrist
35 Calle Clara Vista, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smith
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 9 SEPTEMBER, 1953

Original ARTICLES

DEVELOPMENT OF THE MEDICAL USE OF RADIOISOTOPES

Paul C. Aebersold, Ph.D.
Director, Isotopes Division, U. S. Atomic Energy Commission
Oak Ridge, Tennessee

Introduction

Advances in medicine, like those in agriculture, industry and other scientific and technological phases of our modern day living, are due to the continual development of new tools and techniques. Medical progress has been particularly rapid because of the extensive and increasing procession of powerful tools and techniques available for tackling biological and medical problems. Two of the most powerful tools have been *radiation* and *radioactivity*. The importance of these two tools has recently centered around the now well-known tracer atoms or radioactive isotopes, produced as by-products of atomic energy development.

Radium-Induced Radioactivity - Cyclotron

To appreciate the impact which radiomaterials have had on medical progress, one should go back over 50 years to the discovery of radium by the Curies. The publication of Danlos' case notes on radium therapy in 1904 indicates that the medical application of this naturally occurring radioelement followed closely thereafter. The first biological tracer experiment, however, did not have its inception until nearly 20 years later when Hevesy in 1923 used radioactive lead to study the absorption of that element by plants. The first medical tracer study followed some years later.

The principal limitation in the early use of radioactivity was that most of the naturally occuring forms are isotopes of the heavy elements having little or no presence in living systems. This precluded their use as tracer atoms in biological studies as well as in the type of diagnostic and therapeutic applications requiring introduction of the radiomaterial in the patient. Although some early workers investigated the possibilities of using radium and radon in so-called "curietherapy", that is, by introducing the radioelement into the blood stream, the physical and biochemical characteristics of these two isotopes made this practice infeasible and unsafe. Radium and radon therapy have, therefore, been limited to local or focal therapy where the radioelement is used as an intercavitary, interstitial, juxtacutaneous or distant radiation source.

It was not until the discovery of induced or man-made radioactivity that more versatile opportunities were opened up for internally administered radiomaterials. With the discovery by Curie and Joliot that ordinary elements, which in nature are only found in the stable state, could be induced to become radioactive and with the invention of the cyclotron in the early 1930's, it became possible to produce radioisotopes of most stable elements normally found in the body. This immediately permitted exploration of new ways of using radioactivity in biology and medicine.

Again, however, the wide-scale use of radioisotopes was limited since the cyclotron could produce only a very limited supply of any radioisotope even though its versatility permitted the production of a wide variety of radioelements.

Presented at Annual Meeting of Arizona Medical Association, Tucson, Arizona, April 29, 1953.

Radioisotopes did not become available in quantities sufficient to permit their wide-scale application until the wartime development of atomic energy and the uranium nuclear reactor. We can, therefore, say that radioisotope utilization in medicine as well as in other fields of scientific endeavor has only been extensively exploited during the past six years.

Early Medical Uses

As we have already seen, the medical use of radioisotopes from 1900 to 1946 was primarily limited by the availability of the right kind of radiomaterials in sufficient quantities. Another influencing factor was the time required to develop techniques for their application. Take for example the case of radium.

Although Danlos published his first case notes in 1904, radium therapy was considered inefficient until Dominice reported his work on filtered radiations in 1908-09. Subsequent developments contributing appreciably to the therapeutic use of radium and its products included Failla's success in 1920 of enclosing radon in glass tubing of such size that it could be permanently implanted into tissue; Failla's later success in 1926 of enclosing radon in gold capillary tubing for similar use; and the success in 1934-38 of Paterson and Parker in solving the problem of effecting homogeneous irradiation in practical radium therapy when multiple or relatively large sources of radiation are used at short distances.

Development of the medical use of man-made radioisotopes was even slower because of the wide diversity of their charactertistics and the complexity and number of techniques possible. The investigator needed now to be concerned not only with the physical characteristics of the radiomaterial but with its biochemical characteristics as well. An absolute prerequisite to the internal use of a radioisotope for medical diagnosis or treatment is a complete understanding of the metabolism of the particular element or compound to be used. It became necessary not only to conduct extensive animal experimentation but also to develope accurate techniques for following the clinical course of the materials when used in humans. Information has to be obtained on such factors as the mode and rate of elimination, the possibility of preferential absorption in specific tissues or organs and the interaction of the variety of radiations with different types of biological matter.

As the medical use of radioactivity has developed during the last few decades, several changes have been apparent in the emphasis placed on the nature of their application. When only the naturally occurring radiomaterials were available, their use was limited to therapeutic applications for the reasons outlined earlier. With the invention of the cyclotron and the increased availability of a much wider variety of radiomaterials, tracer applications in research and diagnosis tended to overshadow the therapeutic applications both in number and importance. As greater quantities of radioisotopes became available from larger and more numerous cyclotrons, the importance of therapeutic applications again gained impetus. Today when availability is no longer a limiting factor, by far the greater amount of radioactivity used in medicine is concerned with therapy. From the standpoint of long-range benefits, however, the research and diagnostic applications of radioisotopes will undoubtedly prove much more important.

Present Status of Radioisotope Utilization in Medicine

Since the beginning of the Atomic Energy Commission's isotope distribution program in 1946, over 32,000 shipments of radioisotopes have been made from production facilities at Oak Ridge for non-AEC use. Of this total, approximately 70 per cent have been used for medical research, diagnosis and therapy.

The rapid growth in isotope distribution and utilization during the past five years can be attributed to three factors, (1) increased availability of radiomaterials, (2) more persons trained in the handling and use of radioactive materials, and (3) improved techniques for using radioisotopes.

Increased Avaliability of Materials

Radioelements—Radioisotopes of most of the known elements are now available in quantities sufficient for wide-scale use. Nearly all the biologically useful radioisotopes, including such important ones as radiohydrogen (tritium H3), radiocarbon (C14), radiophosphorus (P32), radiosulfur (S 35), radiocalcium (Ca 45), radioiodine (I 131), etc., are produced routinely and are available continuously (Slides 1 and 2). Although the radioisotopes of oxygen and nitrogen are too short-lived to be distributed, stable isotopes are available which for many tracer purposes serve as well.

As produced in the nuclear reactor, radioisotopes are available in the simplest and most generally adaptable forms, that is, as the element, as a simple salt such as the carbonate or nitrate, or as the oxide. In many instances radioisotope users can conveniently use the materials in the simple chemical forms as shipped. Radioiodine and radiophosphorus, for instance, are often clinically administered as solutions of sodium iodide and disodium hydrogen phosphate which are the chemical forms in which the materials are shipped from the production site.

Radiocompounds—For most biological studies as well as for certain diagnostic and therapeutic applications, radioisotopes cannot be used in simple inorganic chemical forms but must be incorporated into special complex compounds containing the radioisotope. In many instances it is necessary to know the exact location of the radioisotope within the molecule, that is, to know which of the atoms within the molecule is labeled. The radioisotope will serve as a true tracer for some complex compound such as an amino acid or carbohydrate only as long as it remains a part of the molecule. Conversely the same tracer can often be used advantageously to identify the degradation products from a labeled compopnd previously introduced into a biological system.

To date over 500 labeled compounds are known to have been synthesized by either chemical or biological synthesis. Of these more than 300 are routinely available either from Commission laboratories or from eleven private laboratories engaged in the synthesis and distribution of these special materials.

Most of the compounds which have been prepared thus far have been labeled with the radioisotopes I 131, S 35 and tritium and with the stable isotope, deuterium. These materials may be classified as (1) low carbon intermediates such as hydrogen cyanide, acetylene, sodium formate and methanol, from which more complex compounds may be prepared, (2) acyclic acids and derivatives such as acetic acid and succinic acid, (3) amino acids such as alanine and methinonine, (4) cyclic compounds such as benzene and phenanthrene, (5) heterocyclics such as azaguanine and diaminopurine, (6) sugars such as glucose and sucrose, and (7) miscellaneous compounds such as urethan and diiodofluorescein.

The importance of labeled compounds to the future expansion of radioisotope utilization cannot be over-estimated. Experience has demonstrated during the past year that a large percentage of the advances in the biological and medical uses of isotopes is directly attributed to an increasing availability in the quantity and variety of labeled materials. In the future their importance will become even more pronounced.

Procurement and Allocation—Closely allied with availability are the policies under which the Commission distributes radioisotopes. The Atomic Energy Act of 1946 directs the Commission to make radioisotopes available in a manner which will assure their safe use. To insure this provision, the Commission has established certain criteria for the allocation of radioactive isotopes. The Commission has also procured the services of an Advisory Committee on Isotope Distribution to assist in the formulation of procurement procedures.

The Subcommittee on Human Applications, a subcommittee of the main Advisory Committee, has outlined the following general aims governing the distribution of radioactive materials for medical purposes: (1) to make radioisotopes available for approved clinical investigations and for diagnostic and therapeutic purposes where they are needed and can be handled properly and safely; (2) to protect, as far as possible, patients from indiscriminate use of radioisotopes; and (3) to insure that adequate facilities are available for those planning to use the material.

As more people have become familiar with handling radioactivity and as radioisotopes have been used in an increasing number and variety of applications, the Commission has repeatedly re-examined the policies under which the materials are distributed. Efforts have been made wherever possible to lessen the controls on distribution commensurate with public health and safety and to localize responsibility for health safety. The Commission is working toward publication in the Federal Register of criteria governing the distribution and safe handling of radioisotopes. A code of Federal Regulations to govern the procurement, delivery, possession, use, transfer, and disposal of radioisotopes has been established. It is also the Commission's intent to publish as soon as possible health and safety standards for incorporation into these regulations.

The Commission has tried to reduce "red tape" by the issuance of general authorizations. General authorizations make it possible for qualified applicants to obtain from any supplier any available form and quantity of any radioisotope except tritium, obtainable under the Commission's distribution program without submitting numerous applications. Although general authorizations were first issued only to institutions desiring the radiomaterials for research and development activities, their scope has been extended during the past year to include medical applications.

Training in Radioisotope Techniques

Aside from limitations in the availability of radiomaterials the greatest single deterrent to wider radioisotope utilization in medicine as well as in all other fields has been a shortage of people trained in the special techniques of handling and using them safely. In recent years such lack of training has become more apparent since availability of materials is no longer a limiting factor.

All things considered, however, the field of medicine has been much better off than any of the other scientific fields in which isotopes can be used. This stems from the fact that a large majority of the early radioisotope applications were in the field of medicine and therefore those investigators have had more opportunity to become familiar with the techniques involved.

It is also a tribute to medical users of radioisotopes that most of the training obtained thus far in this field has been made possible through the close cooperation of various groups using the materials. With the exception of occasional symposiums and lecture courses, the only opportunity for learning the techniques employed in the clinical use of radioisotopes has been by participating in an active clinical program That this method of training has been quite successful is evidenced by the rapid increase during the past six years in the number of institutions using radioisotopes in clinical studies. By the end of last year nearly 1000 applicants, (institutions, departments, and private physicians) had received AEC authorization to use radioisotopes in medical research, diagnosis or therapy (Slide 3). Still another indication of the extent of medical utilization is that since the start of the Commission's distribution program, more than 1500 papers have appeared in the scientific literature dealing with the use of radioisotopes in medical research, diagnosis or therapy.

Improved Techniques

Still another factor which has had a major influence on the development of the medical uses of radioisotopes is concerned with improvements in clinical and research techniques and in instrumentation. The use of radioisotopes in diagnosing brain tumors will serve to illustrate the importance of these two.

One of the first techniques developed in brain tumor diagnosis was based on the detection of preferentially absorbed concentrations of radioiodine labeled diiodofluorescein. It had been known that the dye, fluorescein, is selectively localized by tumor tissue of the brain and because the dye is fluorescent it had been used to a certain extent during surgery to locate tumor masses. Although useful, this technique is limited because it can only be used after an incision has been made.

Sometime after radioactive iodine became available for widescale use, it was found that diiodofluorescein is also selectively absorbed by brain tumor tissue. The next step was to incorporate radioactive iodine into the diiodofluorescein. Since radioiodine is a gamma-ray emitter, its penetrating radiation can be detected outside the head and therefor the diiodofluorescein technique has proved very satisfactory for locating the tumor mass prior to surgery.

In the early use of the technique it was found that the presence and general location of the tumor mass could be determined although it was difficult to outline in detail the boundary of the mass. One reason for this was the comparatively large amount of radiomaterial required to give statistical accuracy with the counting equipment available.

Here an advancement in instrumentation contributed assistance. With the development of the scintillation counter, which is able to detect much smaller quantities of radiation, it became possible to reduce appreciably the amount of radioactive material used. This in turn improved the resolution of the technique to a point where now the boundary of the tumor mass can be determined with considerable accuracy.

Thus we see an excellent example of an isotope application which owes its usefulness, first to the development of a technique and next to a development in instrumentation. There remains, however, room for further development, especially in the radiochemistry of the technique.

This is evidenced by the fact that workers later found that iodinated plasma protein also concentrates in brain tumor tissue and has certain advantages over the diiodofluorescein. It is expected that the use of other yet untried labeled materials will lead to further refinements in the use of radioisotopes for diagnosing tumors.

Future Radioisotopes Utilization in Medicine

It is somewhat difficult to predict what new medical uses for radioisotopes may be developed through future research and development. In the six-year period since the distribution program started, such diagnostic applications have been developed as the localization of brain tumors and the determination of blood circulation and cardiac output disorders. Also, such therapeutic applications have been developed as the treatment of angina pectoris and the treatment of pleural and peritoneal effusions. Surely, other new applications will be developed in the years to come. One reason for this firm conviction is that more and more medical men are recognizing the extreme versatility and great usefulness of radioisotopes.

Routine Uses

A very large influence will be brought to bear on the future use of radioisotopes in medicine by further development and use of those applications which even today can be considered as approaching the state of routine applicability. Such applications would include the use of radioiodine in diagnosing and treating hyperthyroidism and the use of radiophosphorus in treating polycythemia vera. It has been estimated that several thousand cases of hyperthyroidism have been treated in over 200 hospitals and clinics now using radioactive iodine for such purposes. Over a thousand cases of polycythemia vera have been treated with radioactive phosphorus.

As a further indication of the current status of these radioisotope usages it may be noted that radioiodine 131 and radiophosphorous 32 are now being sold by one large pharmaceutical house under effective new drug applications in compliance with Federal Food and Drug Administration procedures.

EXTENT OF MEDICAL USE OF RADIOISOTOPES
(1951 and 1952)

Isotope		Use	No. of institutions receiving authorizations
I 131	diagnosis	thyroid function (alone)	127
		blood volume	89
		brain tumors	88
I 131	treatment	hyperthyroidism	206
		cancer	206
		angina pectoris & other heart disorders	68
P 32	diagnosis	red cell volume	50
		tumor detection	30
P 32	treatment	polycythemia & leukemia	208
		other cancer	75
		skin cancer	5
Au 198	treatment	intracavitary use	102
		interstitial use	49
		prostate carcinoma	17
C 14	studies in human subjects	patients with severe disease	19
		normal patients	4
Co 60	treatment	(1946-1952)	
		applicators	17
		teletherapy	15
		interstitial	7
Sr 90	treatment	ophthalmic applicator	152

Research vs. Diagnosis and Therapy

Although a large part of the interest in the medical use of radioisotopes has in the past been focused on the therapeutic applications, their use in diagnosis and more particularly in research will in the long run undoubtedly prove much more important. There are several reasons for this.

In the first place the prerequisites for most therapeutic applications cannot be met. Most therapeutic applications which are dependent on introducing the radiomaterial into the system, require a selective uptake in the diseased tissue by a factor of about 100 times the uptake in normal tissue. By way of example, 5000 roentgens or more of radiation are usually required to kill cancer tissue. On the onther hand, the lethal dose to the total body is 500 roentgens or less. In practice the total body dose would need to be kept below 50 roentgens. Consequently the selective absorption of the radiomaterial in the diseased tissue must be greater than is usually attainable. In diagnostic or research usages the degree of selective absorption is not a limiting factor, at least not from the standpoint of health safety, since extremely small quantities of the radiomaterial are used.

Still another reason for placing more emphasis on the reasearch aspects of radioisotope utilization is that the radioisotope is more uniquely a tracer than a source of radiation. In many therapeutic applications radioisotopes are used only as an adjunct to some other method of radiation therapy or chemotherapy. As tracer atoms, however, radioisotopes are unique. They are the only analytical tool found thus far which offers as high a degree of sensitivity, specificity and versatility.

Regardless, however, in what area of medicine radioisotopes find greatest utility, I think the important thing for us to note here is that they have already proved their usefulness in all three major phases, that is, in research, diagnosis, and in therapy.

Areas of Future Limitations

Present production of radioisotopes in simple chemical forms as well as in complex labeled compounds is such that the availability of materials is no longer a limiting factor to increased radioisotope utilization.

By far the largest single bottleneck today is a lack of personnel trained in the special techniques of handling and using radioisotopes. Heretoo, however, the situation is improving.

An increasing number of medical centers and universities are becoming more appreciative of the need for offering training in radioisotope techniques in their educational programs. Individual isotope users are taking greater advantage of the advice and consultation of their own institutional isotope committees. Also, commercial suppliers of isotopes and isotope-labeled compounds are paying more heed to the needs of the medical user by offering "packaged doses" of radioisotopes of uniform chemical composition and calibrated radiation strength. Although such service does not relieve the attendant physician of his responsibility in administering radiomaterials, it does greatly simplify his clinical use of such materials.

Closing Remarks

With the background in materials and techniques now at hand and with the impetus gained during the last few years, it seems certain that a continued and extended use of radioisotopes will make many more contributions to medical advancement in future years.

BREAST LESIONS AS SEEN IN THE PHYSICIAN'S OFFICE

Herbert H. Davis, M.D.*
Omaha, Nebraska

Carcinoma is a very common lesion of the female breast. Because of this, the physician must be alert not to overlook a lesion thinking it may be benign when in reality it is carcinoma. On the other hand, unnecessary surgery including biopsy is to be avoided if possible. Which patients need surgery and which do not?

Patients with breast lesions usually see their physicians because of a lump, pain, discharge from the nipple, or assymetry of the breasts. One in five of these will have carcinoma. Early diagnosis and treatment are the only hope of cure. The chances of cure decrease roughly one per cent a week the treatment is delayed. The lumps may be single or multiple. There may be a definite dominant lump or there may be a diffuse nodularity in which the lumps are rather indefinite. The lumps may vary greatly in con-

*Presented at Annual Meeting of Arizona Medical Association at Tucson, April 27, 1953.

sistency. Some may be circumscribed and some may have indefinite infiltrating borders. Some can be felt when you pick up the breast between the fingers and the thumb and disappear when you feel the breast with the flat of your hand. Some are tender and some are not. The age of the patient is also important in evaluating the problem.

The first questions propably are, "Is it a dominant lump?" This is definite and present no matter how you palpate the breast. Is it tender or non-tender? Benign lesions are more likely to be tender than malignant ones. The difficulty, however, is that a small percentage of carcinoma is tender. Therefore, this finding will give a guide but not a definite diagnosis. Is the lump solid or cystic? You may not be able to tell this by palpation. I think to insert a small needle attached to a syringe is a great deal of help. Fluid proves it is a cyst. The character of the fluid is also important. If you do not get fluid, you can still get the feel of the needle in going through the tumor tissue. If it has a hard rubbery feeling and clings to the needle, it is very likely to be an adenofibroma. If on the other hand it has a hard gritty feeling, then scirrhous carcinoma is likely. Unfortunately medullary carcinoma may feel a great deal like an adenofibroma. Occasionally carcinoma may have cystic degeneration. However, very often in this case the fluid aspirated is bloody.

An adenofibroma is likely to be perfectly encapsulated and pop around beneath the examiner's fingers. Scirrhous carcinoma, on the other hand, is somewhat fixed to the tissue and has an infiltrating indefinite edge. Cystic disease is between these in regard to movability.

The age of the patient is important in making the diagnosis. An adenofibroma is a lesion of young women. It is commonest in the twenties and hardly ever occurs before puberty or after menopause. Cystic disease is the commonest premenopausal lesion. By far the greatest majority of breast lesions in the forties are cystic disease. Its frequency is very slight after fifty-five. Carcinoma is a disease of older people. It begins to increase very rapidly in the forties and hits its peak in the fifties and sixties. It is good practice to consider every single solid dominant lump of the breast to be a carcinoma. You will be right in 80 to 90 per cent of the patients beyond the menopause.

Pain and tenderness are almost normal in a woman's breast in the premenstrual cycle. At this time there is normally oedema, hyperemia, and some epithelial hyperplasia in the breasts. The lobules and lobes are separated by fairly firm connective tissue, and the increased pressure preceding menstruation frequently causes some pain. This should not be called a mastitis as it is not an inflammation. If a person is of a nervous temperament or has cancerphobia, the pain and tenderness seem to them to be more marked. Associated with this is often a diffuse nodularity, not a dominant lump. This type of lesion may be called by different names; possibly adenofibrosis is a good term. At any rate it is not dangerous and does not make that breast more prone to carcinoma. However, while it is on an endocrine basis, there are many different opinions as to treatment. Various endocrine preparations are given empirically. Reassurance alone will relieve distressing pain in 90 per cent of these. No biopsy is necessary.

Tenderness in a breast with either single or multiple dominant lumps is very likely to be cystic disease. This is especially so if the patient is between the ages of thirty-five and fifty. Aspiration of one of the dominant lumps may help settle this problem. If we diagnose a cyst, are we safe in not removing it? I am afraid not. I doubt that cystic disease is one entity. Some cysts are large and lined with a smooth layer of flat epithelium. Others are small and may be lined with many layers of epithelium and even have papillomatous changes. These papillomatous changes may go on to the point of becoming carcinoma. We are never certain which cyst may lead to a carcinoma and which one is safe to let alone. Then, if we find a cyst at biopsy, should we just remove the cyst or should we do a simple unilateral or a bilateral mastectomy? Many people who have one cyst will develop other cysts in the same or in the opposite breast. I personally take the attitude that, if there are one or two fairly large cysts lined with flat epithelium, a simple biopsy and excision of the cysts alone is enough. If we have literally hundreds of cysts showing a marked degree of hyperplasia, then I think a bilateral simple mastectomy is indicated. There are conditions in between these which lead to a great deal of confusion and differences of opinions among leading authorities. Hormone therapy is not very effective. I have been fairly conservative in cystic disease. I know of only two pa-

tients who later developed carcinoma of the breast. Both of these have been over ten years ago and on both I did radical mastectomies. Both are living and well. Fortunately the comedo and papillary carcinomas which develop on the basis of cystic disease are not as malignant as some other types. The present treatment of cystic disease of the breast is very unsatisfactory.

Tenderness may occur in a papilloma in which there is a hemorrhage into the duct. It may occur in a small percentage of cases of various types of carcinoma. In diffuse tenderness without a dominant lump, biopsy is not indicated. If there is a dominant lump, a biopsy should be done.

Discharge from the nipple may be of various types. It occurs in about 8 per cent of all breast lesions. It may be physiologic and harmless, or it may be pathologic, an indication of inflammation or epithelial proliferation. Occasionally women continue to secrete a small amount of milk for months after pregnancy, even occasionally for years. It is usually bilateral. A thin colorless yellowish brownish red or a frankly bloody discharge usually indicates epithelial proliferation. Sanguineous or serosanguineous discharge is due to duct papilloma, papillary carcinoma, papillomatosis in cystic disease, hyperplastic cystic disease, or rarely trauma. A grumous greenlish-yellow discharge is almost always due to stasis in dilated ducts. This is commonly seen in hyperplastic cystic disease.

Hinchey, at the Massachusetts General Hospital, reported the following types of discharge.

Bloody, including serosanguincous	36 (54%)
Serous	16 (22%)
Milky	5 (7%)
Watery	2 (3%)
Miscellaneous	8 (13%)
	—
	67

Causes of nipple discharge

Carcinoma (excluding Paget's disease)	22 (33%)
Paget's disease	2 (3%)
Chronic cystic mastitis	18 (27%)
Duct papilloma	7 (10.5%)
Hormonal dysfunction	7 (10.5%)
Inflammatory cysts	3 (4.5%)
Fibrous mastitis	2 (3%)
Miscellaneous	6 (9%)

Assymetry of the breasts may be caused by an expanding or contracting lesion. An expanding lesion may be an adenofibroma, a cyst, or a rapidly growing carcinoma. A contracting lesion is very commonly a scirrhous carcinoma. A contracting lesion retracts the skin over it and draws the breast toward that area. As these lesions are usually in the upper part of the breast, they tend to elevate the nipple and have it point a little more upward when the person is standing. The breast may seem a little higher than the other. If the lesion is beneath the nipple, it tends to retract it. A retraction of the skin or at least unilateral retraction of the nipple usually indicates scirrhous carcinoma. On the other hand, chronic inflammation may do the same thing.

Retraction of the nipple does not always mean carcinoma. If it is a recent unilateral retraction, it usually does. If the retraction has been present for many years and dates from an inflammation during a lactation, it is probably due to scar tissue in the healing of an acute infection. Bilateral retraction of the nipple since birth is usually a congenital lesion and not serious. A biopsy should be done of any recent unilateral retraction of the nipple.

As carcinoma tends to metastasize by the lymphatics and the major drainage of the breast is to the axillary lymph nodes, these should always be palpated when carcinoma is suspected. A non-tender, dominant lump of the breast, not ulcerated and with no other apparent cause for an enlarged axillary lymph node, usually indicates carcinoma. If there is ulceration or inflammation, it may be chronic lymphadenitis. Again, a lymphoma may begin in the axillary lymph nodes. If there is no lump in the breast and large axillary lymph nodes are found, the individual should be inspected for other lymph node enlargements. If the lymph node is fairly good sized, non-tender, and no other cause is found, it should be biopsied. If an adenocarcinoma is found, it is probably so-called occult carcinoma of the breast, and the primary lesion may be too small to palpate but is usually found in the breast. In this case, even without palpating a lump in the breast, a radical mastectomy should be performed.

Sarcoma of the breast is only one per cent as common as carcinoma. Most of these originate in an adenofibroma. In that case there is a history of a single dominant non-painful and non-tender lump of many years duration which for no apparent reason begins to grow. However, sar-

coma may start in seemingly normal breast tissue. Sarcoma tends to be rather bulky, tends to grow forward rather than to become fixed posteriorly, and may ulcerate when large. It tends to spread by the blood rather than by the lymphatics. Therefore, palpable axillary nodes do not usually appear unless the lesion is ulcerated and infected. When suspected, of course a biopsy should be done, and if sarcoma is found, a mastectomy. Opinions differ as to whether a simple or radical mastectomy should be done.

Treatment

Treatment is unsatisfactory is so-called chronic mastitis. A variety of endocrins are used without much effect. Reassurance of the patient is extremely important. Chronic mastitis is not dangerous, and biopsy is not indicated. An adenofibroma should be excised for biopsy, because in an early stage a single dominant lump, even with no retractive phenonoma, may be carcinoma. Besides that, an adenofibroma tends to grow with a pregnancy, and so should be removed. Other adenofibromas occasionally develop but not frequently.

A cyst or multiple cysts should be excised for biopsy, as carcinoma may be found in the walls of cysts. Opinions vary greatly as to whether a simple biopsy is enough or whether a simple unilateral or bilateral mastectomy is indicated. Hormone therapy has been used but is not very effective.

Any single solid dominant lump in the breast should have immediate biopsy to rule out carcinoma. This is the fundamental rule in the care of breast lesions. If an infiltrating carcinoma is found, a radical mastectomy should be performed at once. I do not believe in waiting a few days for the return of a biopsy. While there is no proof, I feel that dissemination may occur in this time. I also believe in doing the biopsy that taking a little normal breast tissue about the lump is advisable. I do not believe it a good principle to cut into carcinoma tissue at any time. Implants from this are very common. I have no statistics, but am very sure that closing the biopsy wound, sterilizing instruments, and repreparing the skin, redraping, and using fresh gloves and gowns, have greatly decreased later carcinoma nodules near the field of operation, especially in the skin. A carcinoma cell that is transplanted on a knife blade grows more actively than an ordinary cell. Applying the same principle, the attempt to do a curative operation for carcinoma in general by a block dissection, by removing tissue way out beyond the carcinoma, and by not cutting through any carcinoma tissue is an excellent operation. If the carcinoma is so advanced that you have to cut through carcinoma tissue, I think that very often the speed of growth is accelerated. People talk about spreading cancer. Of course we know a lot of that was spreading before the operation. On the other hand, I am sure that, if the surgeon dissects well around the carcinoma, not cutting into the carcinomatous tissue, the cure rate is very good.

Dr. Neis and myself have recently been carefully studying the axillary lymph nodes removed in carcinoma of the breast. In this we made very careful axillary studies of cleared tissue, making at least two microscopic sections of each node removed. In all, 2418 axillary lymph nodes, or an average of 31.4 per patient, were examined and 519, or 21.4 per cent, were found microscopically to contain neoplastic cells. The total number of nodes removed per specimen varied from ten to 73.

Of the 77 patients studied there were no axillary metastases in 29, which is 37.6 per cent. In view of the generally stated opinion that carcinoma grows and metastasizes more rapidly in young people, it is interesting that in this group the two youngest patients were 25 and 26 years of age, with known tumor before operation of six months and three months duration respectively. Neither had metastasis in the axillary lymph nodes. On the other hand, probably the most rapidly progressing growth was in a woman 80 years old. A lump in the breast was discovered only two months before operation. It grew very rapidly locally and carcinoma was found in 61 of the 67 axillary nodes.

The pectoral group of axillary nodes is usually the first involved, then the central group, and then the subclavian. However, a large number of cases have subscapular node involvement. A very important finding was that carcinoma skipped nodes. Another important finding was that there were several cases that had involvement of the subclavicular nodes without any of the lower nodes being involved. This showed definitely that even though no involved nodes were found low, that a radical dissection should be done.

Recently Handley and others have shown that involvement of internal mammary nodes, espe-

cially in lesions of the inner part of the breast, are very common, about half as common as axillary node involvement. It has not yet been definitely decided how to handle these nodes. Wangensteen and those at Memorial Hospital and many others advise opening the chest and removing these nodes. Haagensen, on the other hand, feels that if a biopsy of an internal mammary node is positive it means that the disease is incurable, and he does not advise a radical mastectomy. The frequency of involvement of the internal mammary node illustrates why a fair number of patients have recurrence in the thorax.

Opinions differ as to when and how x-ray therapy should be used. Most agree that the primary treatment should be a radical mastectomy. We find that recurrence in the axilla hardly ever occurs with an adequate dissection. Therefore, heavy doses of x-ray to this area, if adequately operated upon, seem unnecessary. Should we remove the internal mammary nodes or have x-ray therapy to that area? This has not been determined. That seems to be the place where the disease disseminate. I do not think that removal or irradiation of involved supraclavicular lymph nodes will ever be very successful as it is easier for metastases to get through lymphatic ducts into the circulation than to pass these and go upward to the supraclavicular nodes.

Conclusions

Any single solid dominant lump of the breast should have immediate biopsy to rule out carcinoma. If found a radical mastectomy is done.

Multinodularity, which is usually tender, without a dominant lump does not need any therapy. The patient should be reassured.

Opinions vary as to the seriousness and the treatment of cystic disease.

PHOENIX *Clinical* CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 10

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-five-year-old man was admitted to the hospital because of generalized weakness.

Five years before admission the patient first noted nocturia (1 to 2 times) and swelling of the ankles and feet that came on during the day and subsided with bed rest. These symptoms persisted. Three years prior to entry after a cold he developed painful swelling of the knees, elbows and distal interphalangeal joints of the hands, pain in the hips and a nodule over the left olecranon. The joint symptoms lasted five months, during which time he was obliged to remain in bed; following this some residual swelling of the distal phalanges and some limitation of motion of the knees remained. During this illness examination revealed a trace of albumin in the urine; elevated nonprotein nitrogen, serum phosphorus and uric acid; moderate normochromic anemia and x-ray changes of the skull interpreted as characteristic of Paget's disease. Prior to this attack of "arthritis" there had been no weight loss, weakness or dyspnea, but during the subsequent three years he lost fifteen to twenty pounds in weight and developed dyspnea on exertion and progressive weakness and fatigability. The ankle edema became persistent and progressively more severe, with pitting nearly to the knees, and the nocturia increased to five and six times with accompanying polyuria. During the three years prior to entry he had several attacks of "sciatica." Tingling of the fingertips, which was first noted during the attack of "arthritis" five years prior to entry, persisted as an annoying symptom until admission. For the year prior to admission he had some difficulty in starting the urinary stream and slight burning on micturition. Three weeks before admission treatment with digitalis, low-salt diet and vitamin B_{12} injections was begun; the edema disappeared and he felt much improved. Two days prior to entry he stopped the medication because of abdominal cramps and diarrhea of two days' duration. Following this he became progressively weaker.

He had had an appendectomy at the age of twenty-two and a herniorraphy at the age of

fifty. At the age of thirty-six he was operated on for a ruptured gastric ulcer; he had had epigastric symptoms for one and a half years prior to this operation and had been treated with calcium and bismuth powders, but since the operation he had not had any gastrointestinal symptoms or taken any medication. At the age of forty-two he had an attack of "arthritis," with redness, swelling, tenderness and limitation of motion of the left wrist and shoulders and pain in the lower back and thighs. He was treated by dental extraction, heat lamps, pills and bed rest; at the end of three months he was symptom free and had no residual deformity or limitation of motion.

Physical examination revealed a thin man in no distress. The eyes showed unusually marked limbal and subconjunctival calcification of a limbal-girdle type. The thyroid was not palpable. He was edentulous. The chest was kyphotic and there was an increase in the anterposterior diameter. The left border of the heart was at the anterior axillary line in the fifth intercostal space. A grade III harsh apical systolic and a Grade II basal systolic murmur, with transmission up into the neck, were present. There was thickening of the terminal phalanges of the first three fingers of both hands. There was very slight edema of the ankles and pretibial areas. The peripheral pulses were present. The prostate was three times normal size, non-nodular and non-tender.

The temperature was 98.6°F., the pulse 120 and the respirations 20. The blood pressure was 98 systolic, 40 diastolic.

A urine of specific gravity 1.009 gave a two plus reaction for albumin; the sediment contained frequent white cells and an occasional red cell and epithelial cell. A urinary Sulkowitch test was negative.

Examination of the blood revealed a hemoglobin of 12 gm., a white-cell count of 12,500, with 76 per cent neutrophils, and a hematocrit of 36. The sedimentation rate was 1.1 mm. per minute (corrected). The serum sodium was 124.5 milliequiv., the chloride 91 milliequiv., the potassium 7.2 milliequiv. and the carbon dioxide 12.2 milliequiv. per liter. The blood pH was 7.33. The nonprotein nitrogen was 145 mgm., the total protein 6.47 gm., with an albumin-globulin ratio of 2.1, the serum cholesterol 220 mg., the calcium 7.8 mg., the phosphorus 9.6 mg. and the alkaline phosphatase 15.4 units per 100 cc. One twenty-four-hour urine specimen with a volume of 1170 cc. contained 20 mg. per 100 cc. of calcium; another with a volume of 1240 cc. contained 73 milliequiv, of sodium, 64 milliequiv, of potassium and 18 milliequiv. per liter of chloride. A Congo red test showed 40 per cent retention in the serum. A urea clearance test was 4 per cent of normal and a phenolsulfonphthalein excretion was 5 per cent in 30 minutes and 17.5 per cent in 2 hours. A basal metaboblic rate was plus 16 and a protein-bound-iodine determination 3.4 gamma per cent. Roentgenograms of the chest revealed normal lung fields, a normal-sized heart and a calcification of the aorta and bronchial tree; the borders of the upper mediastinum were poorly defined. A barium-swallow examination showed slight displacement of the esophagus to the right. Roentgenograms of the abdomen showed scattered areas of calcification, some of which were in the region of the kidneys. The bones appeared grossly trabeculated and demineralized; the upper lumbar vertebras were osteoporotic, with increased density of adjacent surfaces. A bone survey showed widening of the shafts of the femurs, thickening of the cortical bone in the femurs and humeri, subperiosteal resorption in the humeri and punctate islands of increased density in the pubic bones. The vault of the skull and the anterior two-thirds of the base of the skull showed considerable thickening, with coarse trabeculae and small islands of increased density. X-ray films of the hand showed bone destruction in the midshaft of the terminal phalanges of the first three fingers; these also appeared to be clubbed. There were destruction of the lateral portions of a number of the interphalangeal joints and subperiosteal resolution along the shafts of a number of phalanges. There was destruction of the base of the ulnar styloid process and amorphous calcification adjacent to this. An electrocardiogram revealed a tachycardia of 130, with an abnormal record due to incomplete right-bundle-branch block.

After admission there was little change in his condition. The serum sodium remained persistently low, falling to 114 milliequiv. per liter. Oral sodium-citrate therapy and a free salt intake resulted in some improvement in the acidosis, a rise in the serum sodium to 129.4 milliequiv. per liter, a lowering of the NPN to 102 mg. per 100 cc. and a slight increase in ankle edema. After six days of treatment with aluminum hy-

droxide, 200 to 300 cc. per days, the serum calcium was 8.2 mg. and the phosphorus 6.8 mg. per 100 cc. The patient was digitalized and received a number of blood transfusions. An operation was performed on the twenty-first day.

Discussion by Dr. Ben P. Frissell

I am indebted to Dr. Watkins for stimulating me to reacquaint myself with the problem of Ca-Po4 metabolism.

In this case, my first impression was that this was most likely a case of hyperparathyroidism or Von Recklinghausen's disease of the bone; or, as it is otherwise called, generalized osteitis fibrosa cystica.

However, after delving into the myriad of laboratory, x-ray, and clinical data, I have experienced, and am still experiencing, no little end of trouble in arriving at a diagnosis.

Dr. Reifenstein, writing in Harrison's Textbook of Medicine, summarizes the common disorders of bone with relation to Ca and Po4 metabolism as follows:

1. *Osteoporosis.* A deficiency of the bone matrix, which is the fibrous or protein component of the bone, the so-called skeletal structure upon which Ca and Po4 are laid down. This condition implies no abnormality in Ca and Po4 metabolism. It is found in cases of senility and disuse of bone, particularly in orthopedic cases where an arm or a leg is kept motionless in a cast for a period of time and in cases of disordered protein metabolism such as malnutrition, etc. It is commonly seen in postmenopausal women and it is felt that the steroids have a lot to do with its mechanism.

2. Defective deposition of Ca and Po4 in bone. The matrix in this type of condition is normal but there is impairment of absorption of Ca and Po4 into the bone structure. Classical examples of this type of bone change are seen in rickets in children and in osteomalacia in its various forms in adults. These symptoms are closely tied up with Vitamin-D calcium utilization, etc.

3. *Increased loss of Ca and Po4 from bone.* Hyperparathyroidism, either primary or secondary due to renal pathology, constitutes the classical example of this condition. It is likewise seen in certain cases of extensive neoplastic disease with bone involvement and in Paget's Disease.

I believe from the content of this protocol that we are dealing with some condition which falls in the third category of the above classification.

In differential diagnosis of this case, I feel that we need to give thought to the following conditions:

1. Generalized osteitis fibrosa cystica which includes primary hyperparathyroidism and so-called renal osteitis fibrosa cystica.

2. Hypervitaminosis D.

3. Paget's disease plus some of its complications.

4. Metastatic bone carcinoma or neoplasm, particularly from the prostate, breast, or kidney, and multiple myeloma.

Could this be a case of hypervitaminosis D? I certainly think it could be. Anything that is to be said later concerning the mechanism of generalized osteitis fibrosa cystica goes as well for Vitamin-D toxicity. The only way to establish this diagnosis, however, would be through a history of Vitamin-D consumption in large dosage over a sufficient period of time. That information is not forthcoming from the protocol. One thing against it is the x-ray finding of a displacement of the esophagus on barium swallow and the description of "obscured margins of the upper mediastinum" which could point to a parathyroid adenoma which for some reason has a predilection for ectopic parathyroid glands and occurs singly in about 88% of the cases of primary hyperparathyroidism. The history of a rheumatic patient with a so-called attack of arthritis thirteen years before his final admission and again five and three years before would allow plenty of opportunity for the administration of "Ertron" or similar potent Vitamin-D preparations. Certainly the wide-spread calcium deposits involving the cardiorespiratory organs and soft-tissue structures generally would be in keeping with either diagnosis. There are, of course, differences in the mechanism of the action of Vitamin-D and parathyroid hormone but the effects are the same with the exception of three minor differences:

1. Vitamin-D effect on bone resorption is somewhat slower to develop and more sustained than in the case of parathormone action.

2. Hormone action favors excretion of Po4 in the urine normally; Vitamin-D does not. This would be expected to favor metastatic calcifications in the case of Vitamin-D toxicity due to the relatively high blood Po4 levels.

3. Vitamin-D increases Ca absorption from the gut whereas the hormone has no such effect and has a primary effect apparently on regu-

lating Po4 metabolism primarily by excreting Po4 through the urine and which in turn decreases the blood Po4 level thus drawing both Ca and Po4 from the bone in instances where Ca absorption from the intestinal tract is not adequate to provide for such mobilization. A low Ca level stimulates the parathyroid glands to increase production. There may be a primary effect on bone tissue but the exact mechanism has not been determined.

Primary hyperparathyroidism, or so-called Von Recklinghausen's disease, was described in 1891. There are normally from 4-6 small parathyroid glands situated posteriorly to the lateral lobes of the thyroid. The location is quite variable. They may be scattered in the neck and may be in the mediastinum as previously mentioned. The early symptoms of Von Recklinghausen's disease are rarely diagnostic. There may be rheumatic type pain, weakness, and general debility. Very often the initial symptoms may be due to complications in the cardiovascular renal system. Quite frequently there is an absence of notable bone changes until late in the disease. According to the series from Massachusetts General Hospital of 64 cases, 35 were found to have bone disease and 29 were without it, whereas 52 had kidney disease and only 12 were without kidney involvement. Characteristic blood chemistry reveals an elevated blood Ca, a low blood Po4, and an elevated serum alkaline phosphotase. The latter reaction is a measure of the osteoblastic activity which takes place in the healing process following bone resorption. In the face of renal insufficiency, the blood chemistry picture changes, however. The serum Ca level may be low and the blood Po4 uniformly high. The serum alkaline phosophotase likewise remains high. The initial laboratory data provided in our protocol gives clear-cut evidence of renal disease. We are told that three years before admission there was an increased blood NPN, an increase in blood Po4 and uric acid. At the time of admission, there was also a moderately low sodium with a corresponding increase in chloride of the blood and a definite picture of acidosis. The NPN was 145 mgm.%. Blood proteins were within normal limits. Blood Ca was 7.8 mgm.% against a normal of 9-11. The Po4 was 9.6 mgm.% against a normal of 3-4. The alkaline phosphotase was 15.4 units against 2-9 units. The Sulkowitch test was reported negative. This test is a simple laboratory procedure used to estimate the amount of Ca excreted in the urine and is indicative of a low blood Ca level when it is negative. It is useful in cases of hypoparathyroidism in order to determine the dosage level of dihydrotachysterol.

The characteristic lesion found in the kidney in cases of renal complications in the course of Von Recklinghausen's disease and, in fact, unrelated kidney disease (renal rickets) which may just as well produce the clinical picture of generalized osteitis fibrosa cystica lies in the region of the tubules. There is likewise some damage in the glomerular structure of the kidney. The result of these changes is an impaired ability of the kidney to manufacture ammonium and, as a consequence, there is a loss of fixed space from the blood. In this way Ca is excreted through the kidney. There is likewise a retention of Po4 as the Ca blood level drops. There is increased resorption of bone in an attempt to replace the Ca level of the serum. There is a definite reciprocal relationship between Ca and Po4 so that the product of the quantities of these two elements in the blood tends to approximate the normal level (Ca x Po4 equals 10 x 3.5 or 35 + or −). In other words, as the Po4 is maintained at a high level, blood Ca remains correspondingly lower. Ordinarily the action of parathyroid hormone is to excrete Po4 from the urine but in cases of renal acidosis this is not possible. The end result as far as bone resorption goes, however, is the same as in primary hyperthyroidism, and in cases of so-called "renal rickets" where pathology is primary in the kidney rather than in the parathyroid structure, bone resorption and metastatic calcifications, etc. take on an identical appearance with that described under primary hyperparathyroidism. The treatment of this condition is primarily through the use of alkali therapy to counteract the acidosis. This was done in the case under study with favorable results in the sodium chloride content of the blood as well as the NPN and Ca and Po4, but an aggravation of ankle edema occurred. This edema responded to digitalis and can be correspondingly attributed, at least partially, to myocardial insufficiency. In cases of primary renal rickets, there usually occurs generalized hyperplasia of parathyroid glands as a compensating measure due to the low blood Ca and high Po4. This in turn tends to produce more bone resorption and metastatic calcification.

The description of the so-called "characteristic

lesions of Paget's disease" in the skull x-rays taken three years before admission of this patient is a bit disconcerting. Paget's disease, or so-called osteitis deformans, usually occurs in patients with chronic bone disease past 40 years of age. Bone destruction is characteristic and is usually at the location of stress; the lower extremity, the pelvic girdle, or the lower back. The skull is also involved in a good percentage of cases. Cardiac failure has been reported in conjunction with this disease. Bone lesions, although they can apparently be distinguished from Von Recklinghausen's disease, according to some authorities, are very similar. The blood chemistry characteristically reveals normal Ca and Po4 and an increase in serum alkaline phosphotase. However, the same tendency to renal complications occurs in this disease. The etiology of Paget's is unkonwn. The parathyroids are not involved apparently. There is a tendency to gross deformity of bones and from an x-ray standpoint somewhat more destructive changes in the architecture of the bones. There is no mention of any clinical deformity typical of Paget's disease in our case. The complications commonly noted in conjunction with Paget's disease are renal calculi and renal insufficiency, osteogenic sarcoma, and metastatic calcifications in various organs which may result in fatal complications. There is a peculiar tendency for "gouty" arthritis to be complicated, or accompanied by, Paget's disease. The originally reported elevated uric acid test in this case could be explained on the basis of gout but is likewise compatible with renal insufficiency as previously described.

Metastatic malignant disease of bone can produce the resorptive changes noted on x-ray and likewise approximate the blood chemistry changes. The clinical picture in this case, however, is not in my estimation suggestive of malignant disease. Multiple myeloma is usually accompanied by finding of Bence-Jones protein in urine and alkaline phosphatase is not increased.

In conclusion, I believe we are dealing with a primary type hyperparathyroidism complicated by so-called "renal rickets" on the basis of secondary changes in kidney as the result of metastatic calcifications. However, I do not know how one can definitely rule out secondary hyperparathyroidism due either to hypervitaminosis D or renal rickets per se.

One bit of evidence which favors the above diagnosis is the x-ray finding of a displaced esophagus which I am assuming is due to parathyroid adenoma. If this were secondary hyperplasia, we would expect uniform enlargement of the several glands rather than an isolated tumor as in primary type involvement.

Discussion by M. W. Merrill, M.D.

Our patient today, a 55 year old white man has a history extending back five years and suggests that he had bone and joint symptoms, renal disease and cardiac difficulty. His past history up to that time was essentially non-contributory and included an appendectomy, herniorrhaphy and a ruptured gastric ulcer. He also had some type of arthritis for three months at age 42.

Five years before entry the patient first began to have dependant edema during the day. Three years before entry he began to suffer from some arthritic symptoms and definite evidences of renal damage including albumin in the urine, elevated NPN, serum phosphorus and uric acid. He was anemic at this time and our first indication that he had skeletal changes was found in the skull x-rays which were said to be characteristic of Paget's disease. During the three years prior to admission the patient lost 15 to 20 pounds of weight, became progressively weaker, developed increasing edema of the lower extremities and dyspnea on exertion. Treatment started three weeks before entry to the hospital and apparently directed towards his cardiac condition aided in relieving the edema and made him feel much better.

On admission the patient was thin and edentulous. His chest was kyphotic and he had apical and basal systolic murmurs. The thyroid was not palpable, there was only slight pitting edema of the ankles and the prostate was three times its normal size, non-nodular and non-tender. There was noted some thickening of the terminal phalanges of the first three fingers of both hands. No other bone deformity is described. The patient was afebrile and presented no signs of an acute infection.

It is in the extensive laboratory and x-ray workup of this case that we must look for our diagnosis. In order to present this properly there will necessarily be some over-lapping but I do not believe this can be avoided.

The urine on admission had a relatively low specific gravity — 1.009. Whether this was fixed or not is not stated. Moderate albuminuria was present, numerous white blood cells were seen

and there was an occasional red blood cell. A urinary Sulkowitch test for excessive calcium excretion was negative. The patient was anemic with an hematocrit of 36 and a hemoglobin of 12 grams. The sedimentation rate was normal.

The blood chemistry was quite extensively studied with the following results. The serum sodium and the serum chlorides were definitely lowered, the sodium more so than the chlorides. The sodium was 124.5 milli-equivalents, normal being 136 to 145. The potassium was elevated to 7.2 milli-equivalents, normal being 3.5 to 5. The phosphorus was elevated to 9.6 mgm., normal being 3 to 4.5 mgm. The alkaline phosphotase was moderately increased to 15.4 units per 100 c.c. Normal for an adult is 1.5 to 4 units per 100 c.c. The blood cholesterol was within normal limits as was the serum protein and the A/G ratio. The blood calcium, and this I believe is an important point, was not elevated. On the contrary, the finding was 7.8 mgm., a little below the normal reading of 8.5 to 11.5 mgm. as a normal. The NPN on the other hand was 145 mgm., a definite elevation above the normal of 12 to 30 mgm.

A Congo red test showed a 40% retention which is not diagnostic of any particular disease.

The BMR was taken and was plus 16, but a PBI was 3.4 gamma %, well within the normal limits. Considering this and the normal blood cholesterol, I do not think thyrotoxicosis was a factor in this man's illness.

So far the findings point definitely to renal disease with marked impairment of renal function and uremia. The low sodium and chlorides, the elevated potassium and NPN and the high phosphorus all indicate marked renal damage and the development of acidosis. These findings are further borne out by a urea clearance test of only 4% of normal and impaired P.S.P. excretion.

Now we must come to a consideration of the cardiac condition and the skeletal changes present in this case. In the absence of more helpful diagnostic criteria I am going to assume that the cardiac condition from which this patient suffered resulted from his chronic renal impairment and uremia and that ordinary measures to relieve the cardiac impairment were in order.

The skeletal changes require much more consideration. The bony survey revealed gross trabeculation and demineralization of the bones. Osteoporosis was present in the upper lumbar vertebrae with some sclerosis of the margins. The shafts of the femurs were widened and there was thickening of the cortical bone in the femurs and the humeri. The latter also showed subperiosteal resorption. The skull and pubic bones showed areas of punctate density, probably due to spotty calcium withdrawal. The skull also showed thickening and trabeculation. Hand x-rays showed destruction in the mid-shaft and clubbing of the heads of the first three fingers in the terminal phalanges. There was also destruction of the lateral portions of a number of the interphalangeal joints and subperiosteal resolution along the shafts of a number of the phalanges.

These x-ray findings reveal that extensive bony changes had been taking place, the basis of which was probably calcium withdrawal from the skeletal system. Further discussion will be reserved for the differential diagnosis.

X-rays also showed a normal sized heart and clear lung fields. Of more importance was the fact that there were scattered areas of calcification noted in the abdomen, some of them being present in the areas of the kidneys. Just how extensive these scattered areas of calcification were is not revealed.

Now this man was admitted to the hospital, studied extensively and treated for three weeks and then subjected to a surgical procedure. Treatment was directed primarily at three things. First, impairment of the renal function and correction of the acidosis. This was done with oral sodium citrate therapy and free salt intake. The calcium deficient was treated by giving aluminum hydroxide orally. The calcium came up to 8.2 mgm. and the phosphorus dropped to 6.8 mgm. per 100 c.c., and the acidosis was quite markedly improved. The cardiac condition was treated by digitalization and the anemia by blood transfusions. Following this, a surgical procedure was performed. The question as far as this was concerned is where did they make the incision, or did they make one, and what did they expect to find at the operation?

To attempt to clarify the picture, let us recapitulate a little. Here is a man with chronic kidney disease and uremia. He has complicating cardiac disease. Extensive skeletal changes exist, and he was considered a surgical problem.

Which came first? The surgical problem, the kidney disease or the skeletal changes, or did they all result from the same condition? If so,

how? If we assume that this patient developed a chronic glomerulonephritis with subsequent renal failure, then we probably would also assume that the chronically disturbed blood chemistry played a part in the skeletal changes. The disturbance of calcium and phosphorus metabolisms in the presence of chronic impaired renal function leads to secondary hyperparathyroidism and withdrawal of calcium from the bones. This produces the so-called renal rickets. This syndrome probably follows the increase of phosphorus as a result of renal impairment. It is known that in this condition the parathyroids become hypertrophied, that it has never been satisfactorily shown that they become hyperactive as far as producing parathormone is concerned. I cannot believe that if this were considered to be the case an operation would have been performed, or at least performed to remove the parathyroid glands. I cannot definitely rule out adult renal rickets as the cause of skeletal changes, but I also do not believe that this was the primary condition.

Consideration must be given to the Paget's disease, osteitis deformans, particularly as the first skull x-rays were called characteristic of this condition. Paget's disease does not ordinarily produce renal complications, although at times renal calculi are encountered. On the whole the x-ray findings, the severe kidney impairment and the fact that an operation was performed all tend to make me disregard Paget's disease as a diagnosis.

Other conditions must be thought of—osteomalacia, multiple myeloma and metastatic malignancy particularly. In osteomalacia there are no changes in the blood chemistry. There is little to support a diagnosis of multiple myeloma and no mention is made of Bence-Jones protein being found in the urine.

Metastatic malignancy in the presence of chronic renal disease must be considered. There is no mention of a primary focus, such as the breast or the thyroid. If it was the prostate gland the description of the gland was misleading and the extent of the metastasis far out of the ordinary. Also, there is no mention of an acid phosphotase activity which, when increased, is highly suggestive of a prostatic malignancy. I do not believe the skeletal changes were due to malignancy.

In attempting to apply one diagnosis to the entire clinical picture, one is drawn to hyperparathyroidism with the resultant skeletal changes of osteitis fibrosa cystica. It is well known that in this condition characterized by increased serum calcium, decreased serum phosphorus, increased alkaline phosphotase activity, renal calculi and nephrocalcinosis are common complications. It is entirely conceivable that early in the disease the formation of renal calculi or renal calcification in our patient was the basis for his subsequent renal failure.

It is true that the blood chemistry on admission to the hospital does not bear out a diagnosis of parathyroid adenoma. But we must remember that kidney damage existed long before the patient was hospitalized and that in the presence of markedly impaired renal function one cannot depend on the blood chemistry findings. In this type of a complication with the marked alterations produced by renal failure in the blood chemistry picture, it is likely that the characteristic findings of hypercalcemia and hypophosphatemia might be absent or actually reversed. In our case they were reversed. We must also remember that in long standing hyperparathyroidism an actual calcium starvation can exist and the bony storehouse can become greatly depleted. This also can lead to atypical blood chemistry findings.

If the operation was not for a parathyroid adenoma, what was it for? Was it on the prostate? There is not enough evidence offered for me to accept this hypothesis.

I am going to stand or fall on a diagnosis of hyperparathyroidism, probably due to parathyroid adenoma. I suggest that the renal and cardiac complications were both secondary to this disease.

If allowed a second choice, I would say the patient had a chronic nephritis with uremia and renal rickets. In this case I would be at a loss to know what the structure was upon which they operated.

Discussion by Dr. James Moore

Some of the outstanding symptoms and findings in this case may occur in a large variety of conditions, but the combination of generalized bone lesions, renal impairment and biochemical blood changes point to some impairment in parathyroid function or conditions readily confused therewith. No attempt will be made here to differentiate specific isolated findings from conditions with which they alone

could be confused, but rather to consider the differential diagnosis of this combination of symptoms and findings. This case would fit into a diagnosis of hyperparathyroidism on the basis of:

1. The history of prolonged, generalized pains as indicated in the statements of "arthritis", "sciatica", etc. over a period of years, together with marked weakness.

2. Generalized bone lesions characterized by both osteoclastic and osteoblastic activity shown by x-rays and elevation in alkaline phosphatase values which is an index of osteoblastic activity and proportionate to the degree of bone involvement.

3. Impaired renal function as evidenced by:

a) Nocturia and polyuria
b) Albuminuria
c) Elevated NPN and uric acid
d) Lowered urea clearance
e) Impaired ability to concentrate urine
f) Impaired ability to excrete phenosulphothalein
g) A very low carbon dioxide combining power

4. The high serum calcium and low serum phosphate in uncomplicated hyperparathyroidism is not present in this case but in spite of the absence of such a characteristic and fundamental finding, abandonment of this diagnosis is not warranted for the following reasons:

a) Although hypercalcemia was not shown by the one determination recorded, there is clinical evidence that this had been present. Evidence of this is to be found in the marked weakness, weight loss, x-ray evidence of calcium deposits in the soft tissues and of bone demineralization. An interesting observation and description of ocular lesions seen only in hypercalcemic conditions was reported by Walsh and Howard of Johns Hopkins a few years ago. These consist of deposits which are of two types: 1) Small glass-like beads or particles just beneath the epithelial layer of the conjunctiva. 2) Amorphous, granular, grayish deposits distributed concentrically in the limbus of the cornea on both the temporal and nasal side similar to band keratitis, both of the above to be seen only with the aid of a slit lamp. The eye changes described in this case would be consistent with the above description and therefore clinically indicative of hypercalcemia, at least in the recent past.

b) There is an exception to the high calcium low phosphorus rule in hyperparathyroidism which occurs when the disease has progressed to a marked renal insufficiency. Since this patient showed undeniable evidence of such renal impairment, absence of the characteristic ratio is understandable. In our case, the phosphorus was elevated more proportionately than the calcium was lowered. The calcium was at a low normal level but the phosphorus was quite increased. It has been shown that patients with renal insufficiency and azotemia may have an associated retention of serum phosphorus and low calcium level. It has further been shown both at operation and autopsy that there is an associated hyperplasia of the parathyroids. This hyperplasia is thought by Albright to occur in response to the demand of the body for more hormone to counteract this imbalance. From the above it would seem that the characteristic and usual calcium phosphorus ratio is not absolutely necessary for a diagnosis of hyperparathryoidism.

That this patient gave evidence of a serious renal impairment five years before is shown by the fact that there was the albuminuria with elevated NPN, serum phosphorus and serum uric acid. This was accompanied by moderate anemia. Early bone changes in the skull had already appeared, probably as a result of an overcompensating action on the part of the parathyroid. With this conception, it would appear that the nephrosis caused a disturbed phosphorus calcium ratio, with the parathyroid becoming hyperplastic and with overcompensation causing a hypercalcimia, bone lesions, calcinosis of soft tissues and accompanied by increasing renal insufficiency.

Further differential diagnosis on the basis of the x-ray changes in the skeletal system cannot be made from the description given and probably could not be made by viewing the films. Conditions to be considered, however, briefly are as follows:

1. Paget's disease. The description of bone changes would fit this condition very well but in this condition both the calcium and phosphorus content are normal and accompanying renal changes are not usual. Albright has described a coexistence of Paget's and hyperparathyroid-

ism but without a definite opinion as to the relationship, although it was felt that there are two disease existing coincidentally.

2. Osteomalacia. In this both calcium and phosphorus determinations in the serum are low.

3. Multiple myeloma. This is ruled out with tongue in cheek, as I made this mistake several years ago. Apparently attendants at the Massachusetts General made the same mistake as operation was performed and no parathyroid gland pathology was found. In multiple myeloma, calcium, phosphorus and protein are all high with Bence Jones bodies frequently present in the urine. Metastatic neoplasms from breast, prostate, kidney, bronchus and thyroid can probably be ruled out by the absence of local growths in any of these organs. The calcium phosphorus ratio is not apt to be disturbed, although phosphatase would likely be elevated. Such kidney involvement as was present in this case would scarcely be found.

4. There is a condition known as polyostotic fibrous dysplasia which has frequently been mistaken for hyperparathyroidism. Bone may be involved but uninvolved bone does not show porosis. Bone changes tend to be unilateral. There is no severe associated renal disease. There is usually pigmentation of the skin and the condition is more frequent at younger ages, particularly females in which precocious puberty has been noted. The calcium in this condition is normal or slightly elevated, the phosphorus normal, but the alkaline phosphatase is usually elevated.

5. Sarcoidosis. This condition may show hypercalcemia with bone changes but there is almost invariably a high globulin content in the blood.

6. Hyperthyroidism in atypical cases has simulated hyperparathyroidism with osteoporosis of bone, elevated basal metabolic rate, and increased iodine uptake. While there was a moderate increase in the BMR rate in this case, the other findings are insufficient to consider this diagnosis.

Conclusions

I shall conclude, therefore, that this patient has hyperparathyroidism of the nephrotic type. I think this diagnosis was also made back there and that surgery was probably on the adenomatous or hyperplastic parathyroids to reduce the excessive hormone.

Discussion at Massachusetts General Hospital

Dr. Fuller Albright*: Unless I am all wrong, this case presents no diagnostic difficulties. In the first place there is no question that he has osteitis fibrosa generalisata. The question is: Which of two sequences of events led to the osteitis fibrosa generalisata?

(1) When the first step is a primary hyperparathyroidism: this leads to a characteristic disorder of the calcium and phosphorus metabilism; this in turn leads to the osteitis fibrosa generalisata. The disturbance in the cadcium and phosphorus metabolism may lead to renal disease and this in turn may lead to an alteration of the electrolyte pattern, which one usually associates with hyperparathyroidism.

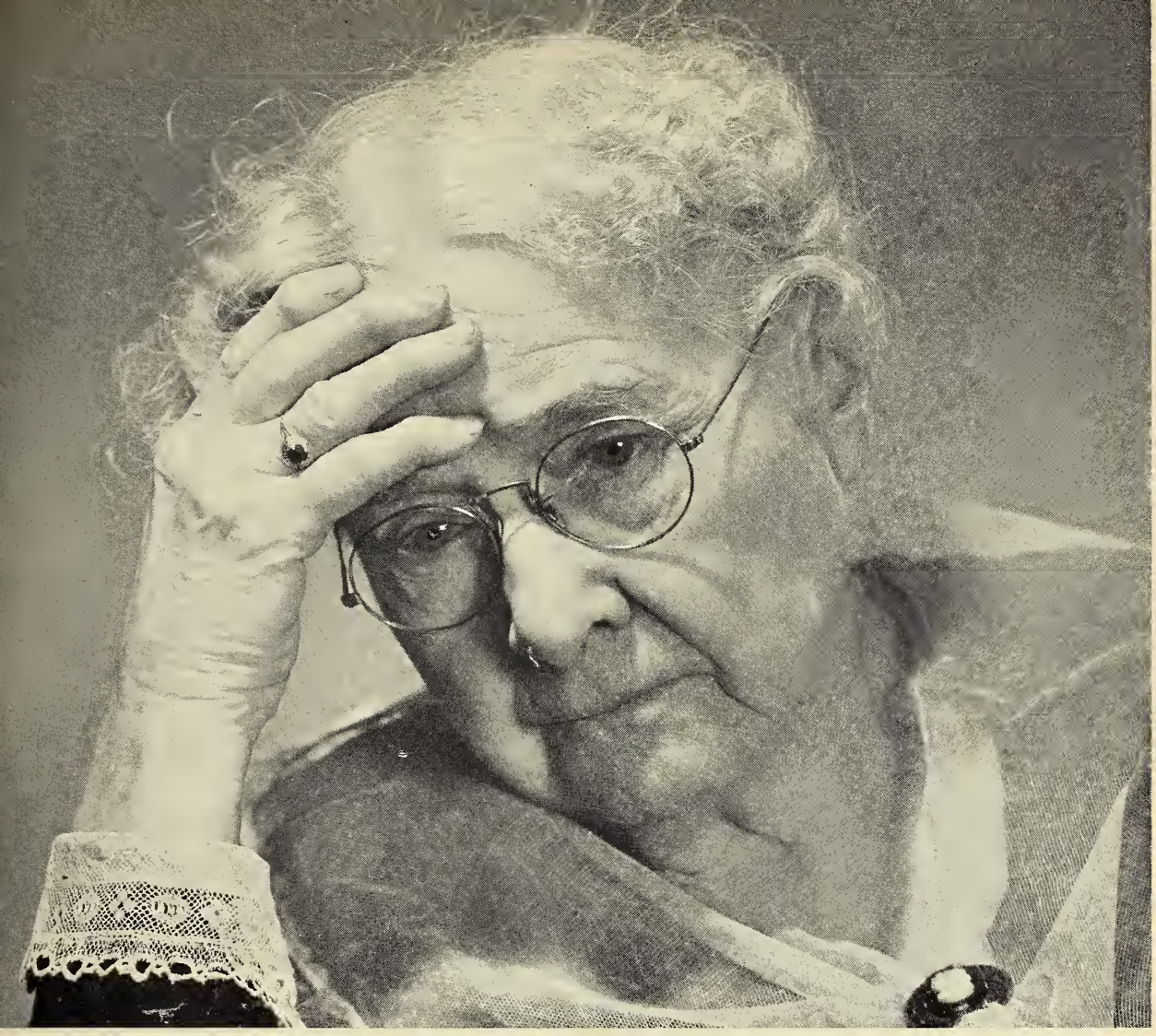
(2) When the initial step is primary renal disease! This leads to a decreased urinary phosphorus excretion, which in turn leads to an increase in serum phosphorus level and hence to a decrease in serum-calcium level. Since the stimulus to parathyroid function is probably a low serum-calcium level, there ensues a compensatory hyperparathyroidism, with enlargement of all four parathyroid glands. This secondary hyperparathyroidism has little or no effect, since the first step in parathyroid-hormone function is an increase in urinary phosphorus excretion and since this already limited the renal insufficiency. To be sure, those who believe that the primary effect of parathyroid hormone is on bone tissue would have a different interpretation.

Both these sequences end with very much the same picture — osteitis fibrosa generalisata, a high serum-phosphorus level, a normal to low serum-calcium level and renal insufficiency. In the first sequence there is usually an adenoma in one parathyroid gland; in the second sequence there is hyperplasia in all four parathyroid glands.

I shall be very much surprised if we are not confronted today with the second sequence. There is no single finding that is inconsistent with either diagnosis. My strongest argument is a case that we have studied that had identical findings.

This previous patient was seen at the age of forty-five. He had had "incurable Bright's disease" with dropsy diagnosed twenty-three years previously. The blood pressure was 165 systolic,

*Physician, Massachusetts General Hospital.



The inevitable restrictions of advancing years, the reduced activity and a lowered intake of bulk-producing foods all contribute to the high incidence of constipation in older persons.

CONSTIPATION IN THE AGED

Constipation is almost a universal complaint of geriatric patients

Frequently, too, the protracted use of cathartics has left the colon in an atonic state and it is no longer capable of effecting a normal evacuation.

Metamucil has long been recommended for the treatment of constipation in the elderly. A highly refined vegetable product which is free from irritants, Metamucil effects a natural mechanical stimulus in the colon which helps the dysfunctioning muscles to regain and maintain their normal tone.

Metamucil may be safely prescribed for prolonged use without fear of dependence, intestinal irritations or allergic reactions.

Metamucil® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

SEARLE *Research in the Service of Medicine*

90 diastolic. The urine showed a ++ albumin, + red cells, + white cells, casts and specific gravity 1.008 to 1.012. The hemoglobin was 65 per cent, and the phenosulfonphathalein excretion was less than 15 per cent in one hour. The nonprotein nitrogen was 121 mg., the serum calcium 8.2 mg., the serum phosphorus 9.8 mg., and the serum alkaline phosphatase 9.4 Bodansky units per 100 cc. The serum sodium was 107 milliequiv., the serum chloride 106 milliequiv. and the serum carbon-dioxide content 11.6 milliequiv. per liter. Roentenograms showed calcium deposits in the soft tissues around the joints, the "moth-eaten" skull of osteitis fibrosa generalisata and several herniations of the nuclei pulposi of the vertebras. Autopsy showed stationary, if not healed, chronic glomerular nephritis, four much enlarged parathyroid glands, osteitis fibrosa generalisata and calcium deposits around the joints.

There are a few points that require some discussion. The edema would have been most unusual in primary hyperparathyroidism and is more consistent with chronic nephritis. Polyuria fits both conditions. The gastric ulcer is of some interest, in view of the frequency with which duodenal ulcers occur in primary hyperparathyroidism. The low serum-calcium level, though, theoretically possible in primary hyperparathyroidism with secondary renal disease, is seldom seen in that condition; this favors primary renal disease. The deposits of calcium around the joints and in the olecranon bursa are more consistent with primary renal disease than with primary hyperparathyroidism.

I should like to look at the x-ray films.

Dr. James J. McCort: X-ray examination of the skull shows a diffuse demineralization of the bone, with small scattered islands of bone showing normal density. Both the inner and outer tables are thin, but there is no expansion of the diploe and no evidence of bone erosion or destruction. An examination of the teeth gave no information about the lamina dura because the patient is completely edentulous. There is demineralization of the mandible.

The chest films show a slight degree of emphysema, extensive calcification of the tracheal rings and marked calcification in the wall of the thoracic aorta. The lungs are entirely clear. A barium-swallow examination performed at the time the chest was examined shows a smooth soft-tissue indentation on the left lateral margin of the cervical portion of the esophagus. The esophagus at this level is displaced slightly to the right and is slightly narrowed.

Dr. Albright: It is not a single adenoma?

Dr. McCort: In our experience, displacement and compression of the cervical esophagus have been more common in the presence of parathyroid adenoma than with simple hyperplasia.

On the plain film of the abdomen are seen a few nodular calcific densities overlaying both kidneys.

Dr. Albright: Are there any stones?

Dr. McCort: These calcifications overlaying the kidneys seem most likely to represent renal calculi. Unfortunately, we do not have a pyelogram

The bones of the lumbosacral spine and pelvis likewise show a diffuse demineralization, with thinning of the cortex and coarsening of the trabecular pattern. Incidental note is made of marked calcification of the abdominal aorta and pelvic vessels. A large number of small oval calculi are seen in the prostrate. In the soft tissues adjacent to the ischial tuberosities, fleck-like deposits of amorphous calcification are seen. The examination of the long bones also discloses a diffuse demineralization. There are extensive vascular calcification and a few irregular deposits of calcium in the soft tissues. The femurs disclosed zones of subperiosteal bone absorption. The films of the hands and feet likewise show demineralization. In the distal phalanges, dissolution of the bone is noted in the midshaft. Fractures have occurred at the site of the dissolution of the bones; this accounts for the so-called clubbing of the fingers.

Dr. Albright: The clubbing of the fingers is due to fractures of the midshafts of the terminal phalanges with telescoping of the soft tissue. Identical clubbing was shown in roentgenograms taken on Captain Charles Martel, whose case played such a large part in the history of hyperparathyroidism.

My final diagnosis, then, would be chronic glomerulonephritis, osteitis fibrosa generalisata, secondary hyperparathyroidism in the four glands, arteriosclerotic heart disease with bundle-branch block, Monckeberg's arteriosclerosis, ectopic calcification and calcification of the prostrate.

One question I should raise is: Why operate? If this turned out to be a single adenoma I shall be very much surprised.

Dr. Benjamin Castleman: Dr. Henneman, would you tell us why the patient was operated on?

Dr. Philip H. Henneman: Without the apparent mass in the neck displacing the esophagus by x-ray examination, this would have been a clear-cut case of primary renal disease with secondary osteitis fibrosa generalisata. However, the paraesophageal mass suggested the possibility of a parathyroid tumor in this region.

Primary hyperparathyroidism is most commonly characterized by an elevated serum calcium and a decreased serum inorganic phosphorus. Occasionally one encounters patients with primary hyperparathyroidism and decreased renal function due to nephrocalcinosis of renal calculi. These patient may have normal or even elevated serum-phosphorus levels associated with only minimum elevation of the serum calcium. The limiting degree of this latter situation appears to be a serum phosphorus sufficiently elevated to depress the serum calcium to levels lower than normal. I have never seen such a case, but I suspect it must exist.

We believed, despite the low serum calcium and elevated serum phosphorus, that the combination of a mass in the neck, osteitis fibrosa generalisata and renal calcinosis made it worth while to ask Dr. Raker to explore the patient's neck in the hope of finding a primary, — and causative, — parathyroid adenoma. Furthermore, we know that removal of such a tumor in similar patients has been followed by arrest of the otherwise progressive renal disease — and even by improvement of renal function in some cases.

Clinical Diagnosis

?Parathyroid adenoma.

Dr. Albright's Diagnoses

Chronic glomerulonephritis.
Osteitis fibrosa generalisata.
Secondary hyperparathyroidism.
Ectopic calcification.

Anatomical Diagnosis

Parathyroid adenoma (and chronic renal disease).

Pathological Discussion

Dr. Castleman: Dr. Raker, will you tell us about the operation?

Dr. John W. Raker: We explored the left side of the neck first, expecting to see a tumor in the region of the x-ray shadow; we found behind the esophagus, wedged between the vertebral bodies and the thyroid gland, a tumor mass that we thought was consistent with a parathyroid adenoma. This was removed, and the pathologist, after seeing a frozen section, said it was probably a parathyroid adenoma. We explored the lower pole on this side and looked for an atrophic gland or another enlarged gland but did not find it. At this point the patient was not in good condition, so we desisted without exploring the right side of the neck. He had a great deal of difficulty postoperatively; he had what was probably a stokes—Adams attack.

Dr. Castleman: We studied this slide for a number of days to decide whether it was a primary adenoma or a secondary hyperplasia. Most of the cells were not enlarged and we could not find a capsule or at least a rim of normal tissue around the mass. However, we did find small fairly clear-cut acini, in contrast to the next slide, which is from the old case of definite secondary hyperplasia that Dr. Albright mentioned and which shows pseudoacini — cells surrounding small arterioles suggesting glandular arrangement. After studying many slides of the case under discussion, we found an area that proves to me that this was an adenoma — a group of cells varying in size, much bigger than normal. This variation in size — at least in the material that we have, — is not seen in secondary hyperplasia, but it is the rule in adenomas. I believe, therefore, that this is probably a true adenoma rather than a secondary hyperplasia.

Dr. Henneman, will you discuss the follow-up on this patient?

Dr. Henneman: Before operation I believed that this patient had a parathyroid adenoma; after the operation I was certain. However, the more I have thought about it the less certain I am that this was an adenoma and not secondary hyperplasia. Dreskin and Fox have reported a similar case and found several others in the literature. Their patient had renal osteitis fibrosa associated with four hyperplastic glands, one of which was much larger than the others and was removed at an operation. It is of great interest that Dreskin and Fox's patient presented a fall in serum calcium and a rise in serum inorganic phosphorus after removal of the hyperplastic

gland. Had these changes occurred in our patient I suspect we would have thought that this confirmed the etiologic status of the tumor. Actually, there has been little postoperative change in the pertinent blood chemical findings or clinical status of our patient. Finally, it seems to me that the lack of a rim of normal tissue around this mass is in favor of hyperplasia.

Dr. Castleman: That is not necessarily the case. If a gland has enlarged enough as a result of a tumor, the rim is completely obliterated. As a matter of fact, in more than half of our cases we did not find a rim of normal parathyroid tissue. I have seen the material of two cases in which there was one very large parathyroid gland associated with primary renal disease, the other three glands being slightly enlarged and all showing secondary hyperplasia. I do not believe we have seen a large enough number of these cases to know whether we can tell the difference between adenoma and secondary hyperplasia. The fact that the surgeon was unable to find the other gland on that side does not mean too much because the gland may have been an aberrant location.

FELLOWSHIPS FOR BASIC RESEARCH IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering the following research fellowships in the basic sciences related to arthritis:

1. Predoctoral fellowships ranging from $1,500 to $3,000 per annum, depending on the family responsibilities of the fellow, tenable for 1 year with prospect of renewal.

2. Postdoctoral fellowships ranging from $3,000 to $6,000 per annum, depending on family responsibilities, tenable for 1 year with prospect of renewal.

3. Senior fellowships for experienced investigation will carry an award of $6,000 to $7,500 per annum and are tenable for 5 years.

The deadline for applications is November 1, 1953. Applications will be reviewed and awards made by February 15, 1954.

For information and application forms, address the Medical Director, The Arthritis and Rheumatism Foundation, 23 West 45th Street, New York 36, N. Y.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Stanford University School of Medicine will present a symposium on Immunity and Hypersensitivity on October 30 and 31, this symposium is sponsored by the M and R Laboratories of Columbus, Ohio. The participants will be outstanding men in appropriate fields and will be from various parts of the United States. The most recognized people available have been sought in an effort to make this an outstanding session.

There will be no registration fee and the sessions are scheduled for Friday morning and afternoon, and Saturday morning. All meetings will be held in Lane Hall at 2398 Sacramento Street in the Medical School Building.

SUPPLEMENT TO THE LIST OF FILMS CLEARED FOR TELEVISION USE NOW AVAILABLE

The Committee on Medical Motion Pictures of the American Medical Association has announced the publication of a supplement to the list of health education motion pictures cleared for use on television. This supplement lists 38 motion pictures which have been cleared for television use since publication of the original list in 1951.

Copies may be obtained by writing to the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

TRUSSES — SURGICAL SUPPORTS

GROVE'S

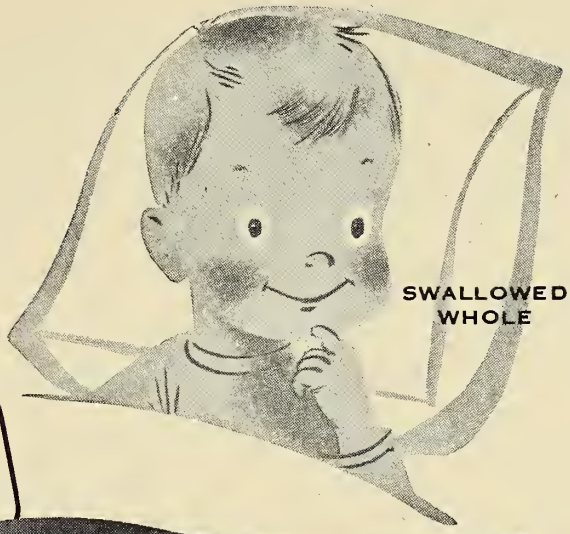
Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona



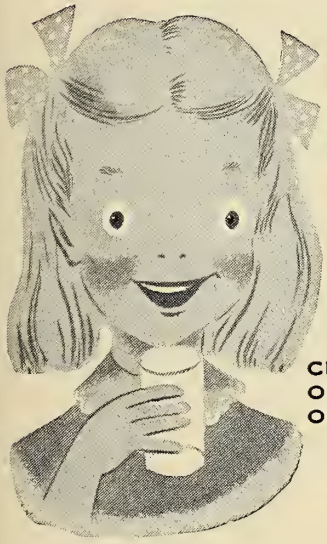
SWALLOWED WHOLE

NEW FLAVORED

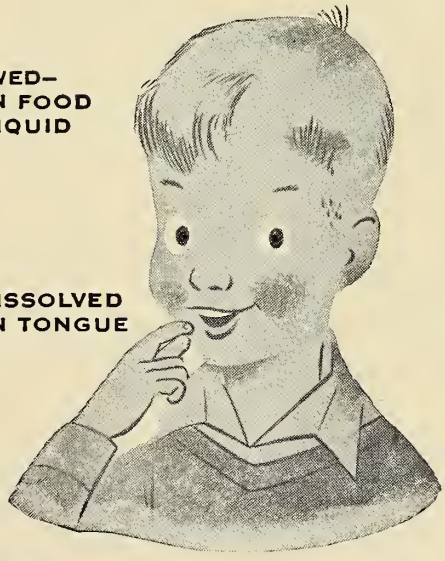
CHILDREN'S SIZE

BAYER ASPIRIN





CHEWED— OR IN FOOD OR LIQUID



DISSOLVED ON TONGUE

- The Best Tasting Aspirin You Can Prescribe.
- The Flavor Remains Stable Down to the Last Tablet in the Bottle.
- 24 Tablet Bottle . . . 2½ gr. each 15¢

2½ gr. ⇨ 1¼ gr.

Grooved Tablets— Easily Halved.

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc., 1450 Broadway, New York 18, N. Y

The PRESIDENT'S *Page*

1954 ANNUAL MEETING

THE 1954 ANNUAL MEETING OF ARIZONA MEDICAL ASSOCIATION WILL BE HELD IN CHANDLER AT HOTEL SAN MARCOS. NOTIFICATION HAS BEEN SENT EACH OF THE VARIOUS COUNTY MEDICAL SOCIETIES. MARICOPA WILL BE THE HOST SOCIETY.

THIS DEVIATION FROM CUSTOM WILL PERMIT MEMBERS OF MARICOPA MEDICAL SOCIETY TO ATTEND MORE FULLY THE SCIENTIFIC SESSIONS WHILE ACTING AS HOSTS. WHEN A MEETING IS HELD IN ONE'S OWN HOME TOWN ONE ATTENDS MEETINGS UNDER PRESSURE OF A TOO HANDY TELEPHONE, AND TENDS TO SCAN THE PROGRAM FOR A PAPER HERE AND THERE WHICH SEEMS OF INTEREST. IN SO DOING ONE OFTEN MISSES EXCELLENT PAPERS WITH LESS ALLURING TITLES AND NEGLECTS THE COMPANIONSHIP OF HIS COLLEAGUES.

THE COUNCIL OF YOUR ASSOCIATION INVESTIGATED FACILITIES AVAILABLE IN CHANDLER AND FOUND THEM QUITE ADEQUATE FOR HOUSING AND EXHIBITS, WITH OFF-SEASON RATES COMPARABLE TO THOSE WE WOULD HAVE IN PHOENIX OR TUCSON.

IT IS HOPED THAT THIE MEETING IN CHANDLER WILL PERMIT ALL OF US TO ENJOY THE BENEFITS OF THE EXCELLENT SCIENTIFIC PROGRAM NOW IN PREPARATION, AND TO MEET SOCIALLY WITH EACH OTHER AND WITH OUR GUEST ORATORS, IN AN ATMOSPHERE OF RELAXATION IN 1954.

EDWARD M. HAYDEN, M. D.
PRESIDENT ARIZONA MEDICAL ASSOCIATION

THE Secretary's MESSAGE

LIMITATIONS IN THE USE OF GAMMA GLOBULIN IN POLIOMYELITIS

Gamma globulin has occasionally created an atmosphere surcharged with unreasoning emotionalism. When emotion supplants reason chaos results. It is high time the doctors use their scientific knowledge to prevent this unhappy situation. A knowledge of the facts and the maintenance of equanimity are obligations we must accept. Our patients will be well served if we fulfill these obligations.

William McD. Hammon, M.D., Professor and Head of the Department of Epidemiology and Microbiology, Graduate School of Public Health, University of Pittsburgh, in a recent article states:

"We find ourselves for the first time with an agent capable of preventing the paralytic disease. Unfortunately, the circumstances under which it is effective are definitely limited and not yet completely defined and furthermore, the agent is in short supply. If the recognized limitations of its application were better understood by physicians and the public there might be much less enthusiasm about it and possibly less demand for it.

Poliomyelitis, as you all recognize, is a peculiar disease: important far beyond its importance. It has been dramatized to the point that when the risk approaches 1 in 1,000 it carries the psychological impact formerly reserved for smallpox or bubonic plague. If this were not the case we could immediately accept gamma globulin in its proper perspective; as a passive, immunizing agent with a very limited field of practical usefulness. The demonstration of its effectiveness is important principally as a stepping stone to something better. However, when one tries to speak in terms of what he considers realism in the scientific, economic and administrative aspects of this problem he is immediately informed by his colleagues and friends that rational, cool calculations of cost versus known risk cannot be tolerated. This is an immunizing agent that would receive little consideration in any other disease of equal importance in death or disability rates, yet it has assumed tremendous importance in poliomyelitis and becomes overnight a $20,000,000 problem requiring emergency handling at a national level. It is apparent that until some better immunizing agent becomes available every possible effort will be made to meet at least a portion of the demand, and we should all be interested in seeing that this material is used as intelligently as possible. Let us attempt to examine the problem briefly.

We all recognize the conditions under which gamma globulin is used in measles. It is recommended for use only after a recognized exposure in a child known to be susceptible, also in special instances of institutional exposure such as a hospital. Including occasional wasteful use in an ill-advised manner, one might estimate that at least every other injection for measles either prevents or modifies the disease.

Poliomyelitis presents a most striking different set of circumstances. Most infections are not associated with clinically recognized disease; exposure is rarely suspected at the time it occurs and susceptibles needing immunization cannot be readily identified. As a result, under the most select circumstances, hundreds or thousands of injections must be given to provide protection to one or two who may actually profit from it. This is blind, shotgun prevention in the extreme and has no resemblance to any previous application of passive prophylaxis of which I have knowledge."

As a result of careful field studies made in poliomyelitis-epidemic areas in Utah, Texas, Iowa and Nebraska, conclusions drawn were that Red Cross gamma globulin "was shown to give highly significant protection against paralytic poliomyelitis," both in reducing the incidence of paralysis and in "significantly modifying the severity" in cases occurring during the first week after the injection of gamma globulin. These conclusions were reached after a study of 54,772 children between the ages of one and eleven, half of whom were given the gamma globulin and half a gelatin as control. The period of follow-up study was thirteen weeks, and the greatest care was taken to avoid errors in reporting. Among this group of children

(Please Turn To Page 336)

104 paralytic poliomyelitis, 73 in the control group and only 31 in the group receiving gamma globulin. The difference in severity of paralysis in the two groups is based on 12 gamma-globulin-treated cases as against 16 in the control group. It was concluded from this that the calculated difference was so in favor of the former that the benefit was obvious without the use of controls and, further, that 42 cases of paralytic poliomyelities were prevented in the gamma-globulin-treated cases. Unfortunately, these conclusions have led to widespread publicity in the lay press, the radio and television, especially during the drives for the March of Dimes and the Red Cross.

The conclusions drawn from the 104 cases are open to serious criticism on the basis of biostatistics. The history of measures used in the treatment and prophylaxis of poliomyelitis is full of conclusions based on inadequate material and subsequently proved to be erroneous. Although gamma globulin may offer a protection against poliomyelitis the results in these 104 cases cannot be taken as a satisfactory evaluation of such protection. On the surface this report favors gamma globulin, and if similar results had been found in five times as many cases such conclusions are were drawn would be "highly significant."

The manifestations of infectious diseases are always variable, whether they are the rash of streptococcosis, the whoop in whooping cough, the salivary-gland involvement of mumps, or the paralysis in poliomyelitis. Indeed, the paralysis in poliomyelitis as a variable is more akin in its incidence to otitis media in streptococcosis and to orchitis in mumps. For it is well to bear in mind that the site of the paralytic lesion in poliomyelitis is as remote from the site of the original invasion as a mastoiditis in scarlet fever or an orchitis in mumps. Although the actual incidence of paralysis in poliomyelitic infection is unknown, there is ample evidence on epidemiologic grounds that it varies widely in incidence and severity. It is the variation in incidence that requires at least 500 cases to offer satisfactory biostatistical evidence.

To attempt to evaluate a preventive measure on the basis of 100 cases is precarious in any infectious disease, and more especially so in poliomyelitis, in which even the nonparalytic form is a presumptive diagnosis without virus studies. Consequently, it appears that the use of gamma globulin as a prophylactic agent against poliomyelitis demands further study before it is accepted as a proved measure.

It is unfortunate that the National Foundation for Infantile Paralysis should put out a brochure entitled: "Polio Message to Parents, Gamma Globulin 1953," which reads in part, "In 1952 March of Dimes scientists proved it to be an effective but temporary preventive in crippling caused by polio," and later, "Polio vaccines are still in a experimental stage." The contrast of these two statements could react unfavorably on further investigative efforts in vaccines, which offer the greatest promise as a public-health measure against poliomyelitis.

The die has been cast. The demand for gamma globulin exists. This product will be supplied to physicians so far as the allotment to each state permits. It is to be hoped that the medical profession will co-operate fully in an investigative spirit with the requirements laid down so that the true value of this agent can be assessed.

Furthermore, much can be done to prevent panic by emphasizing the experimental basis in the present situation.

The regulations for the distribution of gamma globulin for the prevention of poliomyelitis adopted by the Arizona State Department of Health and presently in effect are those recommended by the National Research Council and recognized by the Office of Defense Mobilization, which have the support of this Association.

D. W. MELICK, M.D.,
Secretary

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 SEPTEMBER, 1953 NO. 9

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford
Darwin W. Neubauer, M.D. ..... Tucson

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

IT'S AN ILL WIND

Elsewhere in this issue there is an appraisal of the current tribulations of the State Board of Health. It is somewhat depressing reading and to those of us who are vitally concerned about the health problems in Arizona, it is a discouraging and frustrating situation. The optimist, however, will remember that literature is full of plays, stories, essays and adages reminding us that "the darkest hour is just before the dawn", "If winter comes, can spring be far behind", and exhorting us to look for the silver lining that must be in every dark cloud.

Appropos of this, if one looks long enough and searchingly enough at this situation, he may conclude (to paraphrase another old adage) that this is an ill wind that will eventually blow good for the state. Why? Let us take a look.

Any business man will tell you that most eminently successful businesses have at one time had to weather a severe depression or have been threatened with bankruptcy. Many will maintain that they owe a large measure of their success to such an experience. Many maintain that it is an essential ingredient in the recipe for real success. Several reasons are given as to why a depression or period of financial difficulty is beneficial to the business which survives it. Among the reasons given are these. It reveals or develops the real leaders or executives. The incompetent fail and drop by the wayside. It reveals the basic necessities to a properly run business, allowing these to be nurtured and used while the unnecessary frills and luxuries must go. Unnecessary overhead is eliminated, basic efficiency remains and is enhanced. It reveals the real friends of the business; the unfaithful desert when the going is tough.

Certainly our State Department of Public Health is suffering a depression. Its financial difficulties are very real. But — a leader has been revealed. We should be thankful we have him. He can't please everyone, of course, but many a lesser man would have resigned under even less difficulties. Basic values are being revealed. Two instances are prominent and plain. The building planned to house the state laboratory had to be redesigned because of insufficient funds. The new plans designed for the budget available have eliminated the frills and luxuries, have embodied certain heretofore unthought of economies, and still are said to have preserved most, if not all of the basic requirements of the laboratory. This is an accomplishment to be praised. The second instance

is the elimination of the free clinical laboratory work from the work schedule of the department. There was a time when such a service was necessary and proper but that time is past. The work can be done and is being done now quite satisfactorily by the private and hospital laboratories of the state. It is being paid for by the recipient of its benefits, the patient and no expense to the taxpayer or state is involved. The problem of the indigent is really no problem as most hospital and private laboratories are willing to do such work at no charge for the truly needy upon the recommendation of the family physician. The removal of this work load from the department will certainly leave more time, money and energy for the basic functions such as sanitation, milk, water control, etc.

Last of all, the friends of the department are being revealed. There seems little doubt that these friends will rise and see that the Department of Health does survive and that this "ill wind" does "blow Arizona good".

1. The Public Health Program in Arizona by Royal W. Rudolph, M.D.

COLORADO HEART ASSOCIATION

The Colorado Heart Association, The University of Colorado School of Medicine, Fitzsimons Army Hospital and the Colorado Department of Public Health are sponsoring a postgraduate conference in "Clinical Electrocardiography, and Recent Advances in Cardiovascular Diseases" during the week of November 9-14th, 1953, in Denver.

The first three days will be devoted to Clinical Electrocardiography at Fitzsimons Army Hospital. There is no registration fee for this portion of the conference.

The last two and one half days will be devoted to Recent Advances in Cardiovascular Diseases, with a faculty of the outstanding experts in the nation. There will be a $15 registration fee for out of state physicians attending this portion, which will be held at the Cosmopolitan Hotel.

Communication regarding the conference should be addressed to either Edwin M. Goyette, Col., M.C., Fitzsimons Army Hospital, Denver; or, to The Colorado Heart Association, 314 14th Street, Denver.

Twenty-fourth Annual Postgraduate Symposium On Heart Disease

October 28, 29, 30, 1953. Colonial Ballroom, St. Francis Hotel, to be presented by, The San Francisco Heart Association in cooperation with The Alamedia County Heart Association, The Contra Costa County Heart Association, The Monterey County Heart Association, The San Mateo County Heart Association, and The Santa Clara County Heart Association.

We are proud to present the following Guest Speakers: Robert H. Bayley, M.D., Oklahoma City, Oklahoma; Herrman Blumgart, M.D., Boston, Massachusetts; Howard B. Burchell, M.D., Rochester, Minnesota; Robert L. King, M.D., Seattle, Washington; Ann G. Kuttner, M.D., New York City, New York; Howard B. Sprague, M.D., Boston, Massachusetts; Eugene A. Stead, Jr., M.D., Durham, North Carolina; Lewis Thomas, M.D., Minneapolis, Minnesota; Francis C. Wood, M.D., Philadelphia, Pennsylvania, and Paul Wood, M.D., London, England.

Legislation On Registration Fee

The South Dakota Board of Medical Examiners has announced the passage of legislation creating an annual registration fee for licensees in that state in the amount of $2.00. The registration takes affect January 1, 1954. If you are licensed in South Dakota and wish to maintain that license by payment of the registration fee, please contact the South Dakota Board of Medical Examiners, 300 First National Bank Building, Sioux Falls, South Dakota.

MEETING NOTICES

SIXTH ANNUAL POSTGRADUATE COURSE ON DISEASES OF THE CHEST
New York City — November 2-6, 1953

INTERIM SESSION, AMERICAN COLLEGE OF CHEST PHYSICIANS
St. Louis, Missouri — November 29-30, 1953

20th ANNUAL MEETING, AMERICAN COLLEGE OF CHEST PHYSICIANS
San Francisco, California — June 17-20, 1954

EIGHTH ANNUAL POSTGRADUATE COURSE ON DISEASES OF THE CHEST
Chicago, Illinois — September 28-October 2, 1953

Arizona Pharmaceutical Page

NARCOTIC PRESCRIPTIONS

A number of pharmacists from Arizona have just returned from the 100th meeting of the American Pharmaceutical Association. Meeting with the A. Ph. A. were the House of Delegates; the National Association Boards of Pharmacy; the American Association Colleges of Pharmacy; the College of Apothecaries; the American Society of Hospital Pharmacists and many other groups.

One of the discussions participated in by practically every group was relative to a proposal to amend the United States Internal Revenue Code to officially permit the acceptance of prescriptions over the telephone when calling for codeine in combination with other drugs. This proposed revision would legalize a practice which has become quite widespread and would apply to at least 75% of all narcotic prescriptions.

It is our understanding this revision has the backing of the Commissioner of Narcotics. Much of the groundwork has been layed for the eventual passage of an amendment of this type.

Certainly both the medical and pharmaceutical professions are vitally interested in clarifying a rather discordant situation. Physicians making their house calls have innumerable situations requiring immediate medication and it is only natural for them to phone the desired prescriptions to their pharmacy. Many of the pharmacies, however, desiring to be law abiding have been refusing to accept prescriptions phoned to their stores unless they have the signed copy on file. They are wholly within their rights in asking for a signed prescription because many pharmacists, throughout the country, have had occasion to receive from the Internal Revenue Bureau in inditement either calling for the pharmacists to make an offer in compromise to the government for violation of the Internal Revenue Code or actually being brought before the Courts.

We are all prone to take the easy way out of any given situation and it is not at all unusual for a physician to raise "holy ned" with a pharmacist because the pharmacist refuses to honor a prescription given over the telephone. Complaints are continuing coming to the office of the Board of Pharmacy relative to physicians refusing to send prescriptions to pharmacies not cooperating with them in the violation of the law. This creates untenable situations which are not for the good of either profession. Certainly we all agree the law is bad so far as our individual situations are concerned. Again we all agree the physician should have the right to use such modern conveniences as the telephone to convey his orders to the pharmacist. We also agree the pharmacist should have the right to receive and compound the prescriptions so given. At present this is not possible without being classified as a violator of the narcotic law.

The purpose of this article is to impress upon you the necessity of contacting your congressmen and senators and convey to them your thinking. We do not believe we are asking too much when we ask for the elimination of codeine in combination with other drugs from the provisions of the Internal Revenue Code which do not permit telephoned prescriptions. The various pharmaceutical groups are going to ask for this provision. You as a friend of your Congressman can be of immeasureable value in transmitting to him the need for the passage of this type of legislation thereby eliminating many of the unpleasant situations arising every day.

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

Dr. Walter Alvarez has used a whole column to emphasize the need for caution in ACCEPTING NEW THERAPY. Any columnist likes to be first or early, but one can hardly warn the readers sufficiently about unconfirmed results. Alvarez tries, however, and so does this Osler. . . . If one took a real good vacation he could sometimes miss the whole cycle of success, doubts, toxicity, and failures of a drug. . . . The newest overnight sensation has already struck a snag, with the help of the JAMA and TIME Magazine. Innerfeld, et al., of New York reported miraculous results from the IV injection of TRYPSIN. It seemed to prevent & dissolve clots in dozens of diseases in a fairly large (428) series. . . . The 'doubt' era began almost at once, when Wright and Taylor, same city, found rabbits and humans to have serious effects and FORMATION of clots rather than prevention.

TIME has been more kind to a scientific but non-medical Arizonan who is a onetime contributor to ARIZONA MEDICINE. . . . Wm. H. Woodin III is a herpetologist of increasing fame. He wrote the section on snakes in the 'Small Desert Animals' symposium we had in this journal about five years ago. He is assistant director of the Arizona-Sonora Desert Trailside Museum. . . . His most recent study of South-western reptiles has been to make temperature baselines of the critters, particularly the Gila monster. . . . His job would seem to be the converse of the envious exclamation, "Nice work if you can get it!"

Michigan has taken the legislative steps necessary for a MEDICAL EXAMINER SYSTEM in its counties. The bill makes the decision optional in the individual counties. . . . The change to this system from the 'coroner system' has been the personal project of Le Moyne Snyder, who has sponsored a bill every year since 1936 except during the war. . . . In case his name does not ring a bell, try thinking along medico-legal lines. One of his books, on Homicide Investigation, is a manual on the subject — with some of the darndest illustrations you can imagine.

Minnesota is also trying to RETIRE THE CORONER SYSTEM. They are having the usual trouble in arousing interest in the idea, but a recent series of articles in a Minneapolis paper, called "Hidden Murder", is hailed by the pathologists and others as 'the kind of meat to feed the troops.'

Shambaugh the Younger mentions a simple angle on ALLERGY. The tissues most susceptible to allergic diseases are those thru which pathogenic microorganisms must pass to enter the body, namely the skin, the respiratory mucosa, and the gastrointestinal mucosa. . . . Certain people with an inherited tendency develop antibodies in those tissues for harmless food or inhalants. They react by union of antigen and antibody when they inhale or eat the items with typical changes in the body. . . . He stresses the point that deafness may be one of the numerous sequellae of this sequence.

A few items concerning our 'cousins', the OSTEOPATHS, appear in a recent AMA summary. (They have full license to practice in Arizona, as well as 35 other states and territories). . . . Six states do not allow them to do major surgery. Nine states (including Illinois) restrict them to manipulative therapy. . . . The number of osteopaths in Arizona (96) is about the same as states of similar population, but it is more than Connecticut (76) and the same as Minnesota (92). . . . The relative numbers seem to depend on population, geography, and restrictions on licensure.

Successful THERAPY OF HERPES has been reported by Leitch in Northwest Medicine. It is truly a teenie-weenie series, since it includes only 4 cases of zoster and 1 of simplex. . . . He used huge doses of vitamin B 12 daily for 4 days, and smaller doses on alternate days thereafter for a week. Retrogression and healing began between 36 and 48 hours, and pain subsided in 24 hours. . . . If you want a series this large just be sure to pull up the shirt on all cases which seems to be pleurisy.

BIOLOGICAL WARFARE is reviewed by Beeston in California Medicine for July. The history, the general principles, and the speculation on methods and prevention are so nearly like the editorial summary in ARIZONA MEDICINE four years ago that there is hardly a new detail. Discouraging to current authors, but probably security-wise.

ALCOHOLISM is still a puzzle to many physicians, tho they must often face it. Their patients may incidentally drink or may be primary alcoholic problems. Friends and even family may feel the sodden touch. . . . What are the correct terms to use? What can be done for it? What are the chances of recovery? . . . Strecker and Chambers classify drunkards as 'maniac', 'inferior', or "childhood dominant' cases. . . . Lemere studied

Don't Get Tough, Doctor, ... Get Smart

It's just a matter of Dollars and Sense.

Just because money seems to be getting a little tight . . . (and it will probably get a lot tighter) . . . you don't have to get "tough" with your slow paying accounts.

The "smart" thing to do is to go over your receivables with or without a representative of Medical & Dental Finance Bureau and try financing the larger ones and let our Collection Department in Phoenix go after the others.

We don't get tough. We get the money for you. It's our business to make effective collections, but still retain the friendship and loyalty of your patients.

In any event we will be glad to call at your convenience and show you how you can protect yourself now that "doctor money" is getting tight.

In Phoenix you simply phone ALpine 8-7758 . . . in Tucson it's 3-5391.

MEDICAL & DENTAL
Finance Bureau

Home Office: First St. & Willetta
Downtown: 407 Professional Bldg.
Tucson Office: 706 Valley Nat'l Bldg.
An Ethical Financial Service For Your Patients
Founded 1936

the histories of 500 deceased alcoholics. He found that 28% drank themselves to death; 29% continued to drink unchanged thru life; 10% moderated their intake; 22% abstained during a terminal illness; and only 11% stopped drinking permanently. . . . Of those few who stopped, 68% did so with no help, 24% had spiritual help (including A.A.), and 8% had aversion or psychotherapy. . . . Strecker urges use of all possible methods, but aims at maturing the patient. . . . Prout of Cornell subdivides his therapy for alcoholism into HOSPITAL CARE (for months, with therapy for withdrawal symptoms and vitamin deficiency) and OUT-PATIENT CARE for the long pull. He feels that psychotherapy, plus A.A., antabuse, aversion, routines, adrenal cortical extract, etc. are all valuable.

A device to keep the chest compressed after thoracoplasty (sure, they still do the operation) has been described by Trapp of Vancouver in an American chest journal. He applies what he calls an 'ADHESIVE HEMICAST" over the decostalized area. It is composed of a foundation, covered by plaster bandages. . . . This sounds like a smart way to do a large single stage operation safely, but we must make two comments,—The results by a few other surgeons are not as good as the theory; and (like almost everything else in world) it has been tried 25 years ago.

PENICILLIN REACTIONS are usually preventible, says Feinberg. He refers to the immediate, anaphylactic or atopic type of reaction. It is usually induced by repeated use of the drug, often in a person who is basically allergic. It is almost always detectable by a skin test to penicillin. . . . The test is made by placing a drop of solution (50,000 U. per cc.) on a scratch, or a speck of powdered drug on a scratch with a drop of water or saline on it. . . . A positive, whealing, itching reaction occurs in 5 to 20 minutes. If it is negative, an intradermal test may be made, using 0.01 cc of a solution of 100 U. per cc. . . . Treatment of a generalized penicillin reaction should include ½ to 1 cc. of 1:1,000 epinephrine, IV; aminophylline should then be given IV at once; oxygen may be used; and the epinephrine may be repeated.

MEDICAL BOOK TITLES can be quite dramatic, and helpful to sales. We think they should be, same like names of drug preparations; they should mean something, and suggest what's inside. . . . This month's book-lists have some good (as well as some obscure) title,—1. 'PQRST'—perfectly obvious that it concerns electrocardiography. 2. 'Danger! Curves Ahead'—surely a warning against obesity. 3. 'Directions for Dissection of the Cat'—unusual, and ghoulish to cat-lovers, but straightforward. 4. 'The Trembling Years'—not what it seems; not geriatrics, but the story of a child with polio. 5. 'Warrior Without Weapons' — again, not what it sounds like. It COULD mean a man in need of testosterone, but it really tells of the great adventures of a Swiss Red Cross worker.

The negative approach to a disease is an odd one, worth a paragraph. Swineford, of the U. of Virginia, writes well on "DON'T DO THIS FOR ASTHMA!" Most of the statements are Trite in Tucson or Fusty in Phoenix, but they cover the field. . . . Don't overdose with adrenalin. Don't use adrenalin in oil for acute attacks. Don't 'chain smoke' nebulizers. Don't use aminophylline any way except IV for acute attacks, and don't give it fast. Don't use iodides until proven safe. Don't use medicated steam inhalants. Don't use morphine or its derivatives. Don't use sedatives unless known to be harmless. Don't use oxygen routinely or commonly. Don't use cortisone or ACTH unless absolutely indicated (list given). . . . Don't stop an effective antibacterial agent until the episode is well over. Don't neglect to take repeated cultures when using an antibiotic. Don't fail to consult an ENT man for infectious asthma. Don't ignore polyps. . . . Don't stress food allergy unless present. Don't diagnose food allergy (or any other kind of allergy) on positive skin tests. Don't eliminate an unoffending food for longer than the 3 to 4 week test-period. Don't expect prompt relief from hyposensitization. Don't use all the allergens which cause positive skin-tests. Don't over-treat. Don't interrupt injection schedules because of colds, pregnancy, illnesses, or intercurrent asthma. Don't try to 'hand everything on one (allergic) hook'. Don't advise parents to let a child outgrow his asthma. Don't smoke, sweep, pile pillows around, have house pets, flowers, dust-collecting decorations, perfumes, insecticides, etc., etc., etc. around asthmatics — at least without thinking about it real good.

FOR RENT

Two Doctors, can have ideal location on the East side near McDowell Road.
At Very reasonable figures. Good Parking.

See or Call

Robert Rae, Real Estate Broker

1414 E. McDowell Rd.
Telephone AL 4-1636 — Phoenix

Electrocardiographer, certified, desires to interpret EKG's by mail. Replies by return mail day of receipt. $1.25 per interpretation.

Write %
ARIZONA MEDICINE JOURNAL
424 Heard Bldg., 112 N. Central
Phoenix, Arizona

THE PUBLIC HEALTH PROGRAM IN ARIZONA

by Royal W. Rudolph, M.D., Chairman
Arizona State Board of Health

Historically, the Arizona State Board of Health was established by an Act of the Territorial Legislature in 1903. At that time, the State Department of Health consisted of one part-time Superintendent of Public Health and a full-time clerk.

In the intervening years between 1903 and 1941, the work of the State Department of Health progressed slowly under part-time supervision. Although many improvements were made in the statewide public health program and competent people were added to the staff, little legislative recognition was given to the needs of the department.

In 1941, through the efforts of the Arizona Medical Association, the Arizona Congress of Parents and Teachers and the American Legion, the Arizona State Legislature enacted basic public health legislation which established the position of full-time Superintendent of Public Health. The legislation also included participation in the State Merit System and delegated authority to the State Board of Health for the adoption of rules and regulations for the protection of the public health.

Between 1941 and 1953, little new constructive legislation was added to the statute books of the state. The only favorable legislation enacted was the new Vital Statistics Code which became law in October, 1952.

In 1953, the Arizona State Supreme Court ruled that the Arizona State Board of Health had exceeded its constitutional powers by adopting discriminatory sanitation rules and regulations and declared such rules and regulations invalid. The 21st session of the Arizona State Legislature re-enacted "stop-gap" legislation which re-delegated certain powers to the Arizona State Board of Health and allowed the Board to promulgate and enforce limited rules and regulations regarding the protection of public health.

Today the Arizona State Department of Public Health faces a critical public health situation in view of the drastic curtailment of federal grants-in-aid for public health programs in the United States. As a result of these reductions, the department has been forced to curtail its own services, thus affecting the people and the professions of the State of Arizona.

Many specific public health problems still exist and little can be accomplished under present state legislation and the funds now available for public health.

Tuberculosis still stands as the State's No. 1 communicable disease problem with a death rate of 46.8 per 100,000 population. This death rate is approximately three times the national average. In 1952, 2,865 cases of tuberculosis were reported to the State Department of Health, of which 1,409 were medically diagnosed as active.

It is interesting to note that, contrary to popular belief, the so-called white tuberculosis death rate still remains almost double that of the United States total death rate which includes all races. The white tuberculosis death rate in Arizona is 31 per 100,000 population. The Indian tuberculosis death rate is 10.94 per 100,000 population.

Much has been said about the length of residence of the tuberculosis in the state. Those persons who died from tuberculosis in 1952, 57.6% had resided in Arizona 10 years or longer or were native born. This contradicts the statement that much of our tuberculosis was brought in from outside the state and lends much credence to the belief that Arizona's population is well seeded with active tuberculosis.

Infant mortality, the base indicator of public health services, has been and is one of Arizona's greatest health problems. The infant death rate in 1952 was 44.1 as compared to the United States average of 28.6 per 1,000 live births. The infant death rate can be drastically reduced through good public health protection and adequate medical care. However, many of the severe environmental situations existing in Arizona counties are not conducive to good health protection and, as a result, the infant death rate from diarrhea and enteritis becomes a paramount public problem.

Of the infant deaths occurring in Arizona in 1952, it may be emphasized that 31.9% occurred among the white races, while only 12.2% occurred among the Indian population. Here, again, we find that the so-called white infant death rate is higher than the total United States death rate for all races. The Indian infant death rate, therefore, representing a certain percentage of the total, cannot be said to be

the principal factor in Arizona's high infant death rate total.

With the reporting of over 2,000 new cases of syphilis in 1952, Arizona was faced by still another public health problem. The venereal disease case rates have been reduced in many areas of the United States and it may be assumed that Arizona's case rate could be reduced by more adequate health services throughout the state.

Today, many general factors affect public health. A population increase, bringing with it many new public health problems, has been responsible for the present situation. Within the last half century, Arizona's population has increased 509%, and during the last two years, Arizona has had the heaviest percentage of population increase of any state.

An increase in population brings about a direct and proportionate increase in health problems, such as communicable diseases, community sanitation (especially housing), inadequate health protection services, school sanitation, industrial health, health education, vital statistics, and laboratory services.

With a 50% increase in population from 1946 to 1953, there has been a corresponding increase in work load for the divisions of the State Department of Public Health. During that same time, the amount of money allocated to the State Department of Health by the Arizona Legislature has increased only three percent and, therefore, few additions have been made to the personnel of the department. Inadequate health protection services have become a serious problem in all of Arizona's counties.

The heavy cuts in federal grants-in-aid amounting to over $100,000 in 1953 has necessitated the curtailment of many of the basic services subsidized by the use of federal funds and for which no state funds have been appropriated. The lack of adequate state appropriations affecting public health program expansion and the effectiveness and adequacy of basic health services has forced upon the State of Arizona an additional heavy responsibility.

Comparative state appropriations for public health show that Arizona appropriates 21.5c per capita for public health services in comparison with New Mexico's 48c, Montana's 43c, Colorado's 29c, and Utah's 67c per capita appropriations.

The Arizona State Board of Health requested a budget for 1953-1954 of $300,000 for affecting a more adequate public health program for the State of Arizona. The legislative appropriations amounted to $184,000, $25,000 of which was earmarked for the purchase of a new mobile x-ray unit.

The lack of professional personnel as a result of inadequate public health salaries has also been a general factor affecting the advancement of public health protection within the state. With the exception of one other state, Arizona's salary for the Director of Public Health is less than that paid to any State Director of Public Health and less than those paid County Directors in Maricopa and Pima Counties and in the Phoenix City Health Department. The low salary median also prohibits the department from obtaining the key technical and professional people necessary for supervising a broad state program.

Among the many services affected by the loss of professional personnel and the curtailment of funds for public health protection are laboratory services, vital statistics, venereal disease control, tuberculosis control, environmental sanitation, maternal and child health services, preventive medical services and health education.

The present outlook for public health in Arizona, without the support of professional and lay organizations is not good. Additional cuts in federal grants-in-aid may be expected in 1954 and 1955. Unless some provision is made to offset a reduction in federal funds, there will be a continued curtailment or elimination of additional basic services and a complete degeneration of public health services within the state.

Public health needs include sufficient funds with which to operate an adequate and effective program of public health, adequate salaries for public health personnel, the expansion of local health services, expansion of health education programs, additional diagnostic facilities for tuberculosis and venereal diseases, additional beds for the care of the tuberculous, and adequate and effective health legislation.

In regard to legislation, it might be said that there is a need for a complete revision of present public health statutes and the enactment of a strong, basic sanitation code by the Arizona State Legislature.

Although many advancements in public health have been made within the last 10 to 20 years, it is evident that such advancements cannot

continue under the present circumstances.

The outlook for public health may become more optimistic with renewed interest among many members of the Arizona State Legislature. It is necessary, however, for the public health program to receive the full support and cooperation of the medical profession and of the many other key lay and professional groups within the state.

INTERESTING TOPICS

GAMMA GLOBULIN

What do you know about gamma globulin in connection with prevention of polio? In view of the fanfare on this question in the press, you will doubtless have to answer many questions by your patients or friends. Do you know the answers? Before you get too far out on a limb, better get the July, 1953 issue of The Ohio State Medical Journal, and read the articles by Dr. Albert B. Sabin of Cincinnati, professor of pediatric research of the Cincinnati College of Medicine, and a shorter article by Samuel Saslaw, of the Department of Preventive Medicine at the University Hospital in Columbus, Ohio, as well as the article by Salk in a recent Journal of the A.M.A. These articles issue a timely warning that gamma globulin, even if it were available in unlimited quantities is not the whole answer to polio prevention. Sabin discusses the field trials of gamma globulin in Texas, Iowa and Utah, and has this to say regarding the observed results:

"If one accepts the suggestive evidence of the field trials, there is only one rational basis for using gamma globulin and that is to administer it to those at greatest risk in areas with a very high incidence of the paralytic disease . . . neither need nor want protection against the mild nonparalytic forms of the infection. Furthermore, we should remember that indiscriminate widespread use of gamma globulin, particularly in effective dosage, may interfere with the acquisition of those mild or inapparent infections which give us lifelong immunity."

There is a mistaken idea that gamma globulin confers a long time immunity against the disease, very much like smallpox vaccination. As a matter of fact, the immunity is short-lived and probably is gone after one month. Another fact, sometimes overlooked, is that the gamma globulin fraction of the blood plasma is not in itself a specific preventive of polio, but along with it are the antibodies which may or may not be present. These antibodies have been produced in varying amounts by prior known or unrecognized attacks of polio of one or the other of the three established varieties of virus. Whether any given blood contains *any* antibody against polio, and if so, which type, and how much antibody, is not being established before releasing the gamma globulin to physicians. Consequently, it is entirely possible to have placed in your hands for use a gamma globulin which (a) has a very low titre of antibody, (b) has antibody against the wrong type of virus for your community, or (c) has no antibody at all. According to Sabin, one of the weak points in the whole campaign is the absence of any check on whether the gamma globulin released for use has any protective value or not. Sabin says, "An arbitrary dose of 0.14 cubic centimeters of gamma globulin per pound body weight was selected, because it was considered practical and not because there was any evidence that this dose would transmit enough antibody to remain detectable for any known period of time in human beings.

Saslaw says, — "The use of gamma globulin is merely a temporary uneconomic and grossly inadequate tool for any large scale passive protection program."

The rapid-fire series of announcements in the press about gamma globulin has given the medical profession a monumental job to convince a polio-conscious public that these announcements were premature, exaggerated, and mildly flavored with a minimum of scientific established facts.

Along this same line read the article by Fox on *"Current Approaches to the Control of Poliomyelitis"* in The Journ. of the Louisiana State Medical Society, June, 1953, p. 235.

The U. S. Public Health Service announcement about Immune Serum Globulin will be found in Public Health Reports for July, 1953, page 659. W. W. W.

RECOMMENDED READING

Articles in Recent Medical Journals

Walter C. Alvarez, Chicago. On Disregarding Findings that Cannot Explain the Syndrome. The New Eng. Journ. of Med., July 30, 1953. A very trenchant and characteristic discussion.

Indigestion in Childhood, by Norman B. Capon, Liverpool, Eng., British Medical Journal, July 25, 1953. A brief refresher course.

"With Head, Hand and Heart", British Med. Journ., July 18, 1953. The presidential address before the 121st Annual meeting of the British Medical Association. By J. W. Tudor Thomas, M.D., M.S., D.Sc., F.R.C.S., Cardiff, Eng.

Nature of Tic Douloureux .R. Wyburn-Mason, M.D., M.R.C.P. British Med. Jour., July 18, 1953. A very interesting discussion with some new ideas.

The Diagnosis and Treatment of Proctologic Disorders. Article by Chas. A. Neumeister, Minneapolis, Minn. Journal Lancet, August, 1953.

The Acute Infectious Diarrheas, by Joseph Felsen, M.D., New York, N. Y. Address before the Louisiana State Medical Society, May 9, 1953. The Journ. of the Louisiana State Medical Society, July, 1953. An excellent article.

Some Problems in the Therapy of Amebiasis. Chas. A. Jones, New Orleans. The Journ. of the Louisiana State Medical Society, July, 1953.

Irradiation Therapy as an Adjunct to Surgery. V. L. Peterson, Charleston, W. Va., The West Va. Medical Journal, August, 1953.

The Acute Abdomen. Philip Thorek, Chicago, Ill. Maryland State Medical Journal, July, 1953. One of the many fine papers by this author.

The Reliability of Chest Roentgenography. J. Yerushalmy, Berkely, Calif. Diseases of the Chest, August, 1953. Discussing a series of studies which are to be covered by a book soon to be published. A somewhat disconcerting article to all interested. Read it and weep!

Fractures and Casts. James K. Stack, M.D., Associate Professor of Bone and Joint Surgery, Northwestern University, Chicago. The Journ. of the Iowa State Medical Society. "Let us tour the skeleton and pick out the common instances in which excellent functional results can be obtained following fracture without the use of plaster immobilization." A very interesting tour, highly recommended.

PEDIATRIC RADIOLOGY. Review of Medical Progress, by Neuhauser and Wittenborg, of the Radiologic Department of Harvard Medical School and Children's Hospital, Boston. The New Eng. Journ. of Med., July 9, 1953.

Some rather surprising information appears in this review.

Conclusions are: "No field of diagnosis is expanding more rapidly than pediatric roentgenology. Satisfactory roentgenologic criteria for the diagnosis of well known conditions are being established, new x-ray signs are being disclosed, and many diseases formerly though to be rare are being recognized with increasing frequency."

"Ulceration of the lower esophagus is probably the most frequent ulceration of infancy, but ulcers of the stomach and duodenum are being reported with increasing frequency." Review of reports on diseases of the chest, diseases and abnormalities of the skeleton and of congenital heart diseases are especially interesting. Since seventy five percent of the diseases of children are handled by general practitioners, this review should be of special interest to them, as well as to pediatricians and radiologists.

W.W.W.

———

POLIOMYELITIS. What the Practitioner Should Know About Poliomyelitis. The Rhode Island Medical Journal, July, 1953.

This is an extremely timely and readable article by Louis Weinstein, Lecturer on Infectious Diseases, Harvard Medical School and Chief of the Department of Infectious Disease, Massachusetts Memorial Hospitals, Boston.

Under diagnosis he discusses the prodromes of three types; gastrointestinal manifestations, mild discomfort and either constipation or diarrhea, with mild fever; (2) sore throat and fever, pharyngeal redness with some degree of lymphoid tissue hypertrophy; (3) generalized muscle pain with elevation of fever quite similar to the grippe syndrome. He discusses the nonparalytic polio and the difficulties in diagnosing this; the paralytic form in which the diagnosis is easier. He discusses the clinical course of the paralytic type, the bulbar type and the polioencephalitis. Among the non-specific factors which influence the clinical course of polio, he discusses age, exercise, pregnancy, tonsillectomy and antigen injections. He states that the mortality rate is nine times greater in those older than 16 than in those under this age. The factors mentioned also influence unfavorably the course of the disease, as well as the danger of

its development. The four factors mentioned in the treatment of paralytic poliomyelitis are, (1) saving of life, (2) maintaining and preserving muscle function, (3) making the patient as comfortable as possible, (4) preventing and treating the emotional disturbances which arise, especially in the adult. Highly recommended reading.

W.W.W.

WILL X-RAY BENEFIT IT?

Radiologists are very much accustomed to this question—usually over the phone—regarding a variety of conditions outside the malignant field. Usually the answer is, "It is worth trying." In the Radiation Therapy number of the Mississippi Valley Medical Journal, November, 1952, are several brief articles suggesting value and technic of radiotherapy in some common ailments. In painful shoulders, radiation therapy is excellent treatment for tendonitis and early calcification involving the rotator group of muscles of the shoulder and bursitis of this area. In herpes zoster, roentgen therapy is a rational agent; treatment is both palliative and definitive, the technic varying with the stage of the affliction. Non-malignant painful conditions include (1) Radiculitis, (2) bursitis and allied conditions, (3) chronic arthritis, both hypertrophic and rheumatoid), (4) dermatological conditions of several kinds. Enlarged thymus; no infant should ever be subjected to surgery before x-ray of the chest, and any thymus enlargement deserves treatment. Each of these conditions is discussed in brief articles by separate authors.

W.W.W.

A.M.A. Contributes $5,000 To Netherland Doctors

The A.M.A. Board of Trustees, meeting in Chicago headquarters recently, voted to send $5,000 immediately to physicians in The Netherlands, where flood waters have wrought great devastation and suffering.

In a cable sent to Dr. L. A. Hulst, president of The Netherlands Medical Association, A.M.A. President Louis H. Bauer said:

"American Medical Association forwarding your society immediately $5,000 to be utilized as you see fit. American doctors everywhere extend deepest sympathy to your heroic country in its darkest hour."

A.M.A. Secretary's Letter

THE BROWN SCHOOLS
For Exceptional Children

Year-round school, including Summer Camp, for children, tiny tots through teens, with educational and emotional problems. Six separate residence centers, both suburban and ranch, for homogeneous grouping; complete recreational and academic programs. Under the daily supervision of a Certified Psychiatrist. Full time Psychologist and Registered Nurses. Write today for View Book; full details.

BERT P. BROWN
President

PAUL L. WHITE, M.D., F.A.P.A.
Medical Director

ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

P. O. Box 4008-J
AUSTIN, TEXAS

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics

We Specialize In Planter Box Materials

531 W. Thomas Road Phone AM 6-2401
Phoenix, Arizona

RADIUM and RADIUM D+E
(Including Radium Applicators)

FOR ALL MEDICAL PURPOSES

Est. 1919

Quincy X-Ray and Radium Laboratories
(Owned and Directed by a Physician-Radiologist)

Harold Swanberg, B. S., M. D., Director
W. C. U. Bldg. Quincy, Illinois

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY COMPANY

DWIGHT McCLURE Telephone ALpine 3-1185
GEORGE B. LITTLEFIELD
W. J. WINGAR 407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative

617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.

228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

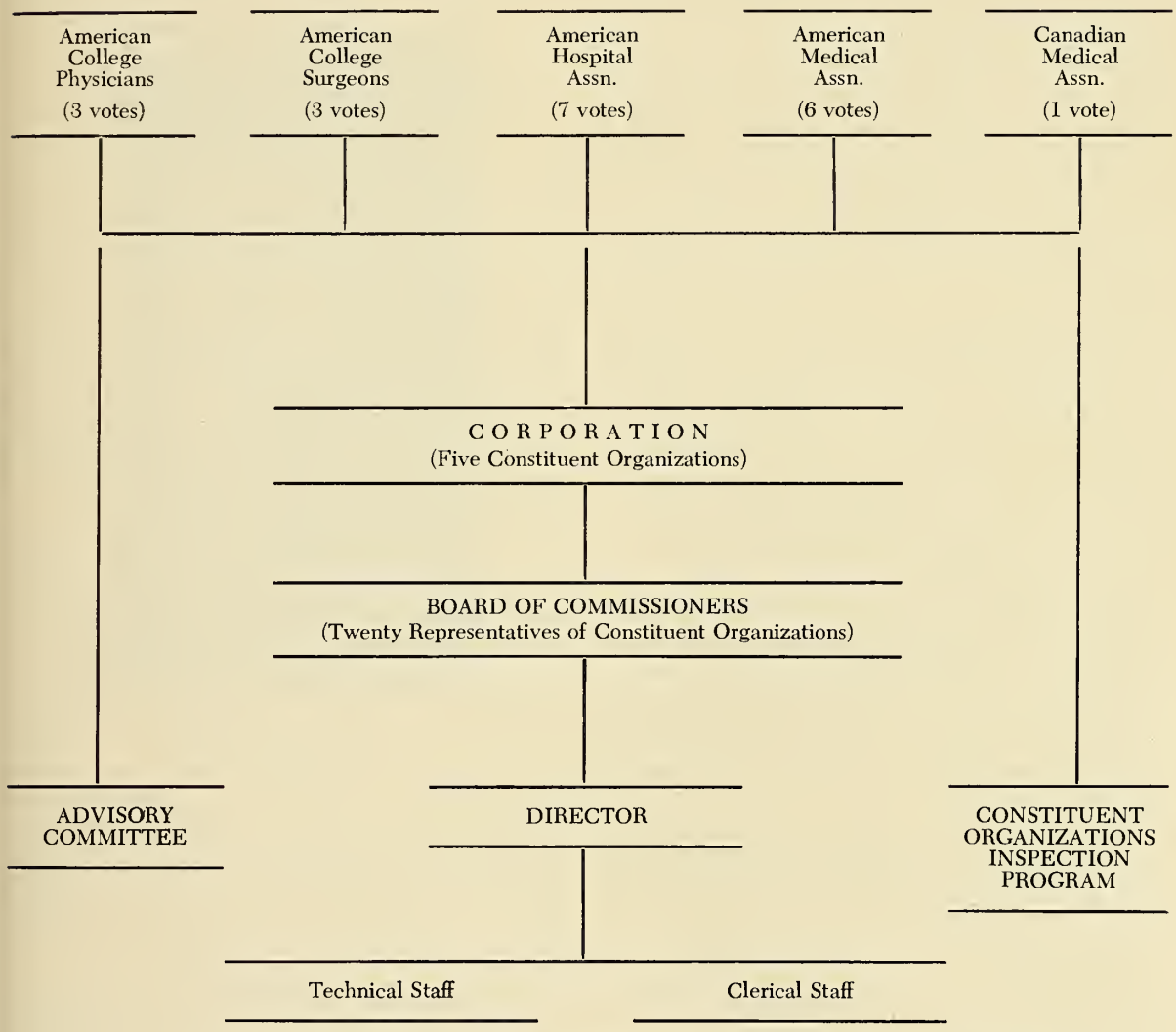
CITY LINEN SUPPLY INC.

333 N. 7th Ave. — Phoenix, Arizona

ALpine 3-5175

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

Perhaps you are interested in knowing how the Joint Commission on Accreditation of Hospitals (which took over from the American College of Surgeons) functions in its hospital work.



The Organization chart above is of interest since the news on the subject has been scanty following the furor which took place some months back just prior to the amalgamation of the various groups.

EXFOLIATIVE CYTOLOGY

Papanicolaou started something. His little snowball of screening suspicious cervical lesions by study of the smears taken from the vagina and cervix has grown to monumental proportions. A survey of the practical value of exfoliative cytology in screening or periodic health examinations has been made Taylor and Ross, and reported in the Journal of the Michigan State Medical Society, February, 1953. Their survey covered a period of four years, and included 1,554 smears on 1,289 patients. Nineteen malignancies were disclosed, including instances of positive smears from the mouth, ascitic fluid, pleural fluid, sputu, urine, prostatic fluid and vaginal smears. They conclude,—(1) Exfoliative cytology is an important screening procedure in detection of malignancy, especially uterine. (2) Its greatest value is in association with periodic physical examinations. (3) This method should supplement but not supplant established measures. W.W.W.

REPORT OF PRESIDENT'S COMMISSION ON THE HEALTH NEEDS OF THE NATION

The voluminous report of the President's Commission on the Health Needs of the Nation was made public this week.

Following a telephone conference, the four-man committee appointed by the Board of Trustees to study the report decided to issue a statement to the press because it was felt that at least one major recommendation of the commission is "so obviously objectionable" that the public's attention should be called to it immediately.

The statement was issued for the committee by A.M.A. President Louis H. Bauer. He made it clear that the American Medical Association is withholding comment on the full report of the commission pending a careful study of the document. It will be several weeks before the A.M.A. committee makes its analytical report.

Dr. Bauer referred to Point 4 of the commission's recommendations, which reads:

"Funds collected through the OASI (Old Age and Survivors Insurance) mechanism be utilized to purchase personal health service benefits on a prepayment basis for beneficiaries of that insurance group, under a plan which meets Federal standards and which does not involve a means test."

"We wonder," Dr. Bauer said, "if all the commission members who signed the report understood the full implications of this recommendation.

"Although the commission does not use the term, this proposal, in effect, recommends national compulsory health insurance.

"We find it extraordinary that this commission should, in its report, recommend a governmental system of paying for medical care which has been rejected repeatedly by the American people, by Congress and by the medical profession.

"In this single recommendation, the commission proposes that funds collected through the Social Security System be used to purchase medical care for beneficiaries (now 4½ million) covered by that system. Under this plan, the federal government, through payroll deductions, would pay directly for the medical care of an ever-increasing segment of our population, and our health services would inevitably be controlled by Big Government.

"In our cursory study of the report, we have observed numerous false and contradictory conclusions and questionable recommendations which the American Medical Association will comment upon in detail at a later date.'

A.M.A. Secretary's Letter

HOUSE ACTION ON FEDERAL MEDICAL SERVICES

After long debate, the AMA's House of Delegates adopted a resolution stating that the fundamental consideration of limiting the care of veterans in Veterans Administration hospitals to the two following categories is sound: (1) to veterans with peacetime or wartime service whose disabilities or disease are service-incurred or aggravated and (2) to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the necessary hospital expenses.

The resolution further comments that to discontinue the provision of medical care and hospitalization in VA hospitals for the remaining groups of veterans with non-service-connected disabilities cannot be accomplished without the cooperation of Congress, veterans organizations and the medical profession. The House of Delegates recommended that the AMA meet with representatives of veterans organizations, the American Hospital Association, American Dental Association, the Department of Defense, and the Veterans Administration to discuss problems and work out a satisfactory arrangement . . . rather than take action at the present time.

Other recommendations include: a definitive AMA policy on the subject of dependent medical care should be deferred until more study has been made; transferring of seriously disabled service personnel from service hospitals to VA installations should be continued; a clear congressional definition of the extent of government's responsibility for furnishing medical care to veterans with non-service-connected disabilities and dependents of service personnel should be obtained; a federal board should be established to allocate the number of beds required by the several federal hospital services to insure joint planning in the field of civilian and federal hospital construction and to determine the need and location for proposed new hospitals in the country.

Woman's AUXILIARY

A LETTER FROM THE PRESIDENT



Mrs. George S. Enfield
Phoenix, Arizona

Dear Friends,

As I write this letter, on August 7th, summer is still with us and it is hard to project one's thoughts ahead to the activity of a new year in Auxiliary work. However, I know that by the time you will read what I am now writing, Fall will officially be here, the children will be back in school, all the groups to which, as wives of physicians and members in good standing in our communities, you belong, have had or soon will have their first meetings and you are well started on the business of another winter season. So it is not too soon for me, as your State President, to send you, through the medium of our Women's Page in Arizona Medicine, my greetings and best wishes for a good year in all your endeavors and, especially, in those which you do through your County Medical Auxiliary.

Our program theme this year is "KNOW YOUR COMMUNITY". Because the doctor, his wife and family are an influential group in any community they have a special civic responsibility, but in order to accept this responsibility they must know their community and its needs. Your State Program chairman will send a suggested group of topics for programs to your County Program chairman and if she will use even a few of the suggestions, I am sure the programs will be interesting and the members will benefit from the knowledge gained.

Our Fall State Board meeting will be held September 23rd, in Phoenix. This is an important planning meeting and each chairman leaves it with the hope that by the February Board meeting she will have a good report on the progress of her committee toward the year's goal. In order that you may have some idea of what our goal is for the year 1953-54, let me recall to your mind the achievements of last year.

LAST YEAR we had 424 members, 407 active, 18 associate. We could have 650. It is my hope that every Doctor's wife in an unorganized county will join with us this year as an associate member and raise their total from 18 to 50. We need them and we feel we could offer them much in return.

LAST YEAR we had 7 organized counties. It would be gratifying if we could organize another county this year. Graham County has only 7 possible members, yet they do a fine job of working together for themselves and their community. Size is not a requisite for organization; the only necessity is willingness to put a little of oneself into a group which works for a cause that is part and parcel of one's everyday life. An Auxiliary does not work alone for behind it stand the State and National Auxiliaries offering help and encouragement, and 64,000 other women — all doctor's wives.

LAST YEAR we sold 395 TODAYS HEALTH subscriptions. Three counties over-sold their quotas. This year let's all over-sell our quotas! We can DOUBLE last year's total if we will sell TODAYS HEALTH to the general public, who need it, and not just to the profession. Free your TODAYS HEALTH chairman of the burden of SELLING TO you by BUYING FROM her, then she will have time to sell to other people.

LAST YEAR every County Auxiliary gave generously to many philanthropic projects in

their own communities. They, also, gave $488.00 to the State Student Nurse Loan Fund and $140.00 to the American Medical Education Fund. We hope that these totals will be raised substantially through various money raising projects on the county level. Nurse Recruitment, Legislation, Civil Defense and Public Relations are still of prime importance in our year's program and to teach we should give a full measure of study and devotion. The chairmen of each of these committees will receive helpful suggestions from the State Chairman and it is our sincere hope that each county will follow through in the splendid way that they did last year. Though names of officers and committee chairmen change from year to year, continuity of purpose goes on. This means the growth and progress which denotes a living organization.

Our 1954 Convention will have a new location next April, in Chandler, Arizona at the San Marcus Hotel. Plans are already underway for a fine meeting and entertainment, so it is not too early to put it on your year's agenda as a must.

The Conference for Presidents and Presidents-elect will be held in Chicago, November 18, 19 and 20. Upon our return, Mrs. Storts and I shall be happy to visit each Auxiliary, during December and January, as they can schedule us on their programs. I shall wear my State President's pin proudly, at Conference, because I know that the record of the Women's Auxiliary to the Arizona Medical Association is good and worthy of pride.

Always sincerely yours,
Rowena A. Enfield.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 10th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 10th OF THE MONTH

Material arriving after that date will be published the following month.

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

U. C MEDICAL LIBRARY
OCT 28 19
San Francisco 22



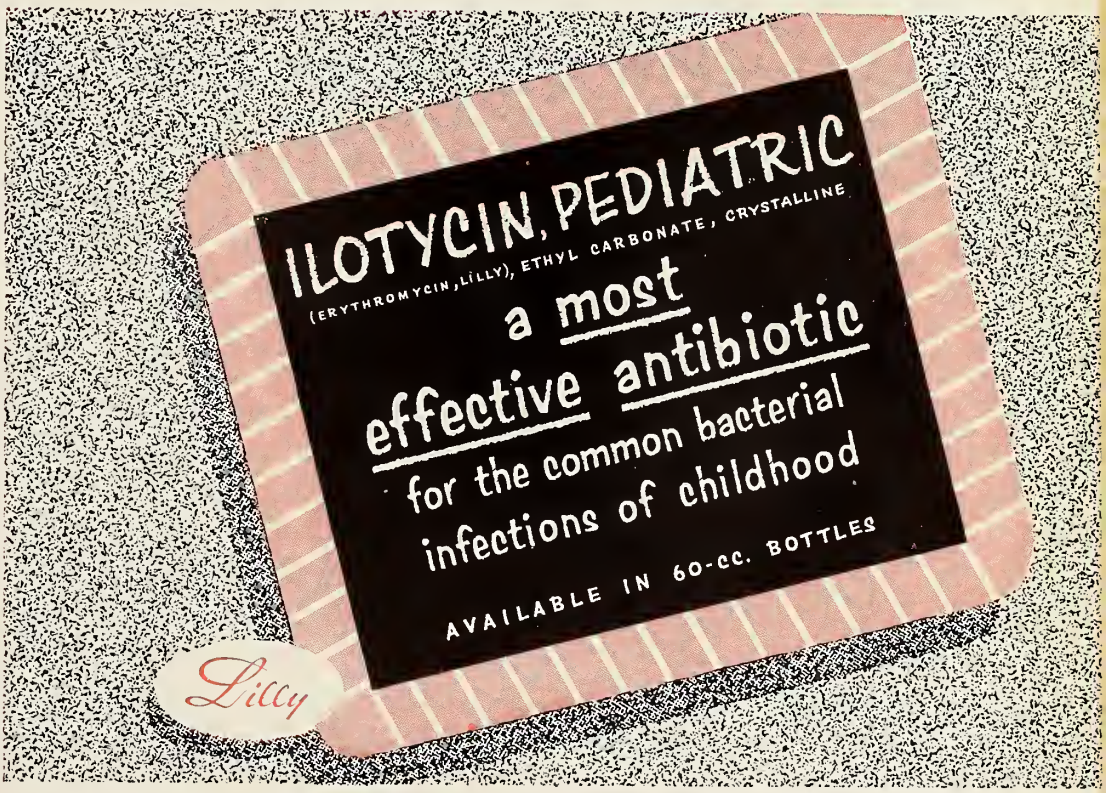
Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

SOUTHWESTERN MEDICAL CONVENTION
October 29, 30, 31, 1953

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA

PIONEER HOTEL TUCSON, ARIZONA



The Journal of the American Chemical S

VOL. 50 FEBRUARY, 1928

A QUARTER OF A

[Contribution from the Research Laboratories of Parke, Davis and Co.]

THE ACTIVE PRINCIPLES OF THE POSTERIOR LOBE OF THE PITUITARY GLAND.[1] I. THE DEMONSTRATION OF THE PRESENCE OF TWO ACTIVE PRINCIPLES. II. THE SEPARATION OF THE TWO PRINCIPLES AND THEIR CONCENTRATION IN THE FORM OF POTENT SOLID PREPARATIONS

By Oliver Kamm, T. B. Aldrich, I. W. Grote, L. W. Rowe and E. P. Bugbee

Received December 31, 1927 Published February 4, 1928

Introduction

The manifold physiological activities of extracts of the posterior lobe of the pituitary gland are now well known; namely, their effect

1928

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 10 OCTOBER, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI
COUNTY MEDICAL SOCIETY OFFICERS DIRECTORY VIII

ORIGINAL ARTICLES

INDICATIONS FOR IRRADIATION OF BREAST LESIONS 353
U. V. Portmann, M.D., Tucson, Arizona
THE ROLE OF THE NON-SPECIALIST IN THE CARE OF ALLERGIC DISEASE.... 354
Samuel M. Feinberg, M.D., Chicago, Illinois
WHY REPORT COMMUNICABLE DISEASES? 358
Drs. Clarence G. Salsbury and James B. Swayne, Phoenix, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 363
Drs. Louis B. Baldwin and A. J. Fillmore

PRESIDENT'S PAGE

SPEARS CHIROPRACTIC HOSPITAL IN DENVER 372

EDITORIAL

HOSPITAL BEDS 373

ARIZONA PHARMACEUTICAL PAGE

THE SECOND CENTURY 1852-1953 374

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 376
Guillermo Osler, M.D.
DIFFERENTIAL DIAGNOSIS IN THE RHEUMATIC DISEASES 371
INTERNATIONAL ACADEMY OF PROCTOLOGY 371
MEETING NOTICE 371
CHIROPODY, A HAND MAIDEN OF MEDICINE 381

WOMAN'S AUXILIARY

THE PLEDGE OF LOYALTY TO THE WOMAN'S AUXILIARY 380
Mrs. David W. Thomas
LEGISLATION REPORT 380
Mrs. Charles L. von Pohle, Chandler, Arizona

DIRECTORY

LABORATORIES XXI
SANATORIUM DIRECTORY XXII
DRUGGISTS DIRECTORY XXVI
PHYSICIANS DIRECTORY XXIX

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 541 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Pboenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Milton C. F. Semoff, M. D., Tucson; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: William B. McGrath, M. D., Phoenix, (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; Zenas B. Noon, M. D., Nogales; John R. Schwartzmann, M. D., Tucson

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knigbt
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolpb
3935 Miner, Tucson
Mental Health ..... Mrs. Delbert Secrist
35 Calle Clara Vista, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smitb
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 10 OCTOBER, 1953

Original ARTICLES

INDICATIONS FOR IRRADIATION OF BREAST LESIONS

U. V. Portmann, M.D.
Tucson, Arizona

There are only a few indications for irradiation of benign diseases of the breast. The principle one is for the analgesic effect when there is pain from acute or subacute mastitis, adenosis, or chronic cystitic mastitis.

Tumors of the breast which appear clinically to be benign should be excised because some will prove to be malignant when examined microscopically. Examination should be made immediately, preferably by frozen sections. If cancer is found more radical surgical procedures are indicated at once.

The principle indication for irradiation is when cancer is found. In general about 85 per cent of cases with small movable cancers and no metastases, or stage I, survive five years after operation alone. But 15 per cent die of cancer. This may be because (1) unrecognizable metastases to substernal lymph nodes which may develop especially from inner quadrant tumors, (2) cancer cells may pass through the axillary node group to metastacize in the supraclaviculars or elsewhere, (3) metatases may escape meticulous microscopic examination of axillary nodes, (4) lymph nodes with metastases in them may not have been removed.

Stage II cases have small freely movable tumors with metastases in only a few axillary nodes. The general five year survival rate is reduced to 35 per cent or less by operation alone.

Post-operation roentgen therapy is indicated for stage I and II cases. Local recurrences on the chest wall seldom occur in such cases, but metastases in regional nodes or elsewhere may develop. Post-operation irradiation should be given to the regional lymph node areas including the substernal groups. It may not be necessary to irradiate the chest wall if there is reason to believe that all of the malignant tissue has been removed. The irradiation may not cure but will increase the five year survival rate in 15 to 20 per cent of cases by destroying some neoplastic cells thereby delaying local growth and remote metastases.

Operations are contra-indicated for stage III and IV cases except occassionally for removal of ulcerations which do not respond to adequate irradiation. Stage IV cases have remote metastases which of course contra-indicates-operation. Incidentally all patients to be operated upon for tumors of the breast should have radiographic examinations of the chest, vertebrae and pelvis prior to operation to eliminate the possibility of metastases in these regions.

Irradiation for remote metastases for stage IV cases is purely palliation. Sex hormone therapy may be given concurrently. In older women stilbesterol seems to be best by oral doses of 10 to 30 mg. per day. In younger women testosterone propionate intra-muscularly in doses of 100 mg. three times a week may be given but half this dose often is effective. Also ablation of ovarian functions by roentgen therapy seems to be beneficial in some cases.

The principle indication for irradiation and benefits for cancer of the breast is for stage III cases which are incurable and inoperable. The criteria of incurability should be carefully sought and women with them not subjected to opera-

Presented before the Annual Meeting of the Arizona Medical Association held at Tucson, April, 1953.

tion but treated by irradiation alone. These criteria areas follows:

The Skin

1. Edema (orange or pink skin) of more than slight extent.
2. Ulceration of more than slight extent.
3. Brawny red and inflamed not obviously due to infection.
4. Secondary skin nodules.

The Breast

1. Diffusely edematous.
2. Diffusely infiltrated
3. Multiple secondary tumors.
4. Fixation to chest wall.

Metastases

1. Axillary lymph nodes numerous, extensively involved and fixed.
2. Supraclavicular lymph nodes or edema of arm.
3. Involvement of contralateral breast or lymph nodes.
4. Remote metasteses in bones, lungs or other viscera.

Eliminating the presence of remote metastases of Stage IV, the criteria given are those of stage III. An analysis which I made of 136 Stage III cases shows the following results in percentages alive following operation alone and x-ray therapy alone in yearly periods up to five years.

	No.	1	2	3	4	5
Alive operations only	53	49.5	17.0	6.0	4.0	4.0
Alive x-ray alone	83	83.3	54.1	33.3	20.8	17.0

It will be noted that only half of the patients operated upon survived one year and 4 per cent survived five years. In all probability 4 per cent would have survived as long without treatment. Also the percentage of survivals in each yearly period of patients given roentgen therapy alone is higher than those operated upon and 17 percent lived five years. This was a worthwhile extension of economic usefulness and life.

CONCLUSIONS

1. Irradiation may relieve pain associated with certain benign disease of the breast.
2. Small tumors of the breast should be excised, examined microscopically at once and if cancer is found more radical operations are indicated without delay.
3. Stage I and II cases of cancer of the breast receive postoperation roentgen therapy to delay extension.
4. The criteria of incurable cancer of the breast have been given.

Stage III and IV cases should not be operated upon but treated by irradiation alone. Also the use of sex hormones and ablation of ovarian functions may be beneficial.

THE ROLE OF THE NON-SPECIALIST IN THE CARE OF ALLERGIC DISEASE

Samuel M. Feinberg, M.D. *
Chicago, Illinois

Clinical allergy is at the crossroads! Unless we can interest the non-specialist in the care of at least some of the simple allergic problems, the prevention and management of allergic mishaps arising from diagnostic and therapeutic procedures, and cooperation with the allergist in difficult cases, millions of allergic individuals are doomed to unnecessary suffering. The role of the non-specialist in the management of allergic disease should be actually a greater one than that played by the allergist. The purpose of this presentation is to indicate to you the reasons why the non-specialist must deal with allergy, the know-how of importance to him and how this knowledge can be obtained.

*Presented before the annual meeting of the Arizona State Medical Society, at Tucson, April 27, 1953. From the Department of Medicine and the Allergy Clinic, Northwestern University Medical School, Chicago.

WHY THE NON-SPECIALIST MUST DEAL WITH ALLERGY

Prevention and care of man-made allergic manifestations. One of the big problems in medical practice today is the prevention and care of allergic syndromes arising from diagnostic and therapeutic procedures. This phase of medicine was negligible 50 to 75 years ago, when the chief diagnostic instruments were the stethoscope and fever thermometer, and when therapy was limited to blood-letting, calomel and a few other relatively simple drugs. Quinine, aspirin and coal tar derivatives then became part of our armamentarium and thousands of cases of allergy to these drugs ensued. Urticaria is one of the lesser manifestations. Asthma from aspirin and other analgesic drugs is not rare, particu-

larly in those who are subject to chronic asthma. Asthma induced by aspirin is extremely violent and sometimes fatal. In addition to these effects it became evident that some drugs, particularly aminopyrine, were capable of producing hematologic changes, especially granulocytopenia.

Then came the era of arsphenamines, with the concomitant advent of thousands of cases of allergic reactions, many of them serious and some fatal. The use of animal sera for prophylaxis and cure of infections and diseases of intoxication began to demonstrate a train of untoward responses such as serum sickness and the immediate anaphylactic type of reaction, some of which were fatal.

Almost from the very inception of the use of sulfonamides allergic effects to these drugs have been noted. Rashes, "serum-sickness" type of manifestations, occasional anaphylactic type of response, granulocytopenia, aplastic anemia, thrombocytopenia and periarteritis have been among the effects observed.

The newer antibiotics have created a new problem in allergy which must be faced by every practitioner of medicine. Topical applications of penicillin and some other antibiotics to the skin have been largely abandoned because of their great tendency to produce contact sensitization. The delayed type of reaction from penicillin, occurring customarily about ten days after its administration, and consisting mainly of urticaria, angioneurotic edema, arthralgia and fever, still affects 2 to 5 per cent of those receiving the drug. The use of different types of penicillin or the concomitant use of antihistamines has had no appreciable effect on this tendency. More recently it has become apparent that a more dangerous type of penicillin allergy is on the increase. Due to repeated use of the drug, an increasing number of people are acquiring the anaphylactic type of sensitivity. In mild form this may consist of symptoms of urticaria or asthma immediately following administration of the drug. In its more severe form the patient goes into shock and frequently becomes unconscious. In such instances a fatal outcome is not unlikely. There is good reason to believe that the fatalities from such anaphylactic episodes now amount to several score. Such reactions presumably may result from any type of penicillin, and recently it has come to light that the iodide salt of penicillin, penethamate hydriodide (neo-penil^{R}) is particularly likely to produce such effects.

To these man-made allergies one should add those arising from insulin and liver injections, hormones, vitamines, vaccines, contrast media for gallbladder and kidney visualization, and many drugs such as opium derivatives and others. Also to be included are allergic reactions resulting from transfusions. Usually these take the form of urticaria, but other and more serious manifestations may result. They are caused either by the reaction of the donor's allergic blood with a food (or drug?) which the recipient has ingested or by the interreaction of the recipient's allergic serum with an antigen from the donor's blood. Such reactions are, of course, minimized by pooled plasma.

Care of simpler and acute allergic disease. There are about 10 million people with allergy in this country, about half of whom require fairly regular or repeated care and the other half occasional attention. The number of physicians who confine their practice to allergy and who are reasonably well qualified does not exceed one thousand. Ten thousand patients per allergist is an impossible load and it is quite obvious from the standpoint of numbers alone that a large percentage must seek relief from the non-specialist.

It is no more than right that the internist, general practitioner and pediatrician should undertake the care of the simple cases of hay fever, and should be able to manage the patient with the occasional or mild asthma. The rhinologist is expected to prescribe for the patient with an allergic rhinitis or even at times to look for the specific etiologic factor. The acute case of urticaria must, in most instances, be managed by the non-specialist. The successful pediatrician must learn how to handle the problem of infant feeding from the standpoint of the prevention and management of food allergy. Even the surgeon and the obstetrician should recognize that they encounter allergic problems. In addition to the allergy arising from therapeutic and diagnostic procedures, important items include the tendency to postoperative atelectasis in asthmatic patients, the choice of an anesthetic, the effect of pregnancy on the mother's allergy and advice as to the possibilities of inheritance of allergy. It is the family physician on whom the patient must depend when he has an acute allergic illness, whether it be hives or asthma.

Cooperation with the allergist. The allergist requires the cooperation of the non-specialist in the care of many of the allergic patients. Since allergists cannot be planted at distances of several miles apart it is obviously difficult for many patients to come to the specialist for regular and repeated treatments. It is here where the general practitioner, internist, pediatrician or other type of specialist must act as an associate to the allergist. He should carry out the suggestions, advice and give the injections prescribed by the allergist. The non-specialist may have to see that the patient carries out the diets and other suggestions. As a family doctor he is frequently in a position to learn many things about the patient — his habits, emotional factors and the physical environment of his home and occupation — details which may escape the specialist in his isolated consultation room in the heart of a large city. The physician who is closer to the patient may frequently have to prescibe medication indicated for the conditions at the particular moment.

The non-specialist and allergist should regard themselves as true associates in the care of the patient. The allergist should be informed periodically of the progress of the patient, new developments and any other points of interest. He should not be regarded as a glorified laboratory technician who issues a report to the doctor, or even as a casual consultant who after seeing the patient once, has terminated his interest and usefulness. The allergist, on the other hand, must not regard the cooperating physician as a technical assistant or in the capacity of a nurse who is expected only to follow a list of doses and give a few injections to the patient. The allergist must see to it that the cooperating physician is fully informed about the patient's findings, the rationale of his treatment, the composition of the antigens, the goal to be achieved and anything else that the allergist knows about the patient. Above all, each must have confidence in the other. Under these favorable conditions the non-specialist need not fear the loss of practice when he refers a patient to the allergist. Not only can he, in many instances, continue to care for his patient, but even where he cannot or does not wish to do so, the successful outcome increases patient and family goodwill and results in ultimate gain to the referring physician. To the allergist, of course, the conscientious cooperation of the non-specialist is a matter of absolute necessity. Without him he cannot succeed.

INFORMATION ON ALLERGY OF IMPORTANCE TO NON-SPECIALIST

It is apparent that all of this presupposes that the non-allergist knows something about allergy. Obviously at this point it is not possible to go into detail of what this knowledge should be, but it is appropriate to suggest the main topics of information that should be part of the practitioner's armamentarium.

The causes and manifestations of allergy. The mere recognition of the role of many drugs in the causation of allergic manifestations will do much to minimize the possibility of such occurrences. The knowledge that some gastrointestinal manifestations or that some headaches may be due to food allergy, the realization that pollen and molds cause the majority of reasonal hay fevers, and the willingness to face reality in the asthmatic child and not wait for it to "outgrow" the asthma, are but examples of bits of information which may be ultimately of help to the patient. It's important to know that an allergic cause cannot be found by the honest allergist for every case of asthma or vascomotor rhinitis. It is equally important to be hard-cored about accepting syndromes into the allergic fold just because they are puzzling and do not have an immediate explanation at hand. Chronic fatigue, muscular pains, insomnia, jitteriness, schizophenia, acne and chronic alcoholism are not allergic manifestations in spite of the claim of some extremists to the contrary. Neither has it been proven that refined food products, such as traces of starch, purified dextrose or cane sugar carry the allergenicity of their food of origin.

Principles of diagnosis. Much can be learned about the allergic patient from history-taking. The history in some instances is far more important than any other diagnostic procedure. The closer the physician is to the patient the more informative the history may be. This is then to be regarded as a major instrument of the non-specialist. The history may suggest the presence of certain complications or it may give a clue to the diagnosis of the specific cause. And frequently it may warn the physician what medication not to give.

The elements of skin testing should be known whether the physician does the tests himself or depends on a report from someone else. For atopic disease (asthma, hay fever, eczema, etc.)

the appropriate skin test is either the scratch or intradermal procedure. The scratch test is safer, more often clinically significant and less painful. The intradermal test is more sensitive but at the same time lends to a greater incidence of non-significant reactions, it is more painful and may be hazardous. Many allergists use the intradermal to supplement the scratch method. For the non-specialist the scratch technique is preferable. A positive test consists of an urticarial wheal, with erythema and itching occurring within 5 to 20 minutes after the application. The patch test is employed in contact dermatitis. It is read in 24 to 48 hours. A positive reaction consists of itching, erythema and possibly vesiculation.

The interpretation of the skin test is a major concern of the non-specialist. To assume that a positive skin test solves the cause of the patient's complaint is to open the door to endless error and much injustice to the patient. A positive skin test may also mean that the antigen is related to the one which causes the allergy, that it's the cause of an allergy of which the patient does not complain or that the clinical manifestation may not show itself months or years later. One must be aware that certain substances, such as histamine, morphine, codeine and acetylcholine, give a positive whealing reaction in everyone. Many solutions or preparations used for testing are irritating and the resultant responses are false and misleading. Dermographism is a frequent source of false reactions.

Conversely, a negative test must not be taken at its face value. In some allergic conditions such as urticaria and headaches, the tests are usually negative even when the causative allergic factor is known. In "serum sickness" type of reactions, consisting of urticaria, arthralgia and fever, occurring several days after the administration of serum, penicillin and some other therapeutic substances, the skin test is almost always negative. Such manifestations cannot be forecast by a skin test prior to the administration of the drug. On the other hand, the anaphylactic or immediate type of reaction to penicillin or serum is usually associated with a positive whealing skin test. In view of the growing hazards from penicillin, it is advisable that the administration of this drug in those whose have had it previously be preceded by a scratch test. If the latter is negative an intradermal test (10 to 100 units to 1 cc) may be used. If the test is positive the use of penicillin is hazardous.

In spite of their capacity to produce allergy most drugs do not give positive skin tests. This is particularly true of aspirin, aminopyrine, phenacetin and related drugs. Aspirin may produce urticaria or such violent asthma that at times a single tablet has resulted fatally. The informed physician will not be fooled by the misinformed laboratory which issues a report that the patient has a negative skin test to aspirin and is, therefore, not allergic to that drug.

Principles of treatment. Since the non-specialist must administer most of the palliative treatment for allergy he must be cognizant of its major principles. Adrenalin is the best remedy for an allergic emergency, such as an anaphylactic reaction or acute asthma. But it is of little use in serum sickness, where antihistamines are preferable. The antihistamines have limited value, being useful particularly in the itching dermatoses and in allergic rhinitis; their effect in asthma is negligible. The iodides are still an excellent remedy in persistent asthma. Aerosols of epinephrine or isopropyl epinephrine (isuprel or norisodrine) are useful adjuncts in the treatment of asthma. ACTH and cortisone are valuable remedies in some cases of acute status asthmaticus and for the maintenance therapy of occasional persistent allergies, such as some cases of intractable asthma. They certainly should not be used as a first or routine measure, as a substitute for diagnosis or as a substitute for other more simple and less hazardous symptomatic remedies.

There is nothing more dramatic and more complete in the therapy of chronic disease than the relief of a chronic allergy by the removal of the specific cause. This should be the objective in the treatment of allergy whenever possible. To this end the non-allergist must learn a few elementary principles. The basic procedures in formulating a diet, the procedures for avoidance of house dust and the substitution of safe cosmetics are among such steps.

It is in the realm of desensitization therapy that principles of good practice are frequently abandoned. Desensitization should only be given for inhalant or contactant allergy. Inhalants should be used only if the cause is proven and avoidable. Pollen from plants which are insect

pollinated, dander of a dog which can be more easily removed from the home, or pollen from timothy which is hundreds of miles away do not call for desensitization therapy. For the most part, pollen, molds and house dust are the chief antigens used in desensitization, while occasionally the use of special, occupational or other unavoidable inhalants may be indicated. There must be a rational causal relationship before such therapy is employed. The principle of the use of small, harmless doses, of gradually increasing amounts should be followed. Conservatism should be the rule and reactions should be avoided. Desensitization therapy requires care and certain precautions but mastery of its use can be accomplished by the discerning physician.

Most physicians have had little if any opportunity to learn the principles of allergy when they were medical students. It is true that the curricula of most medical schools are giving increasing emphasis to allergy. Nevertheless, the practicing physician must discipline himself to acquire knowledge and experience from sources other than his undergraduate training. Short postgraduate courses are frequently available and helpful, providing that the physician does not delude himself into thinking that a course of a few days makes him a specialist. Allergy programs are frequently offered, such as by symposia at the state or county meetings or at the Allergy Session of the A.M.A. Regional and national allergy societies also offer programs from which the non-specialist can obtain considerable benefit. And last, but not least, there remains the valuable training derived from careful observation of patientsts, discriminative reading and study and the free exchange of ideas in the doctors' lounge in the hospital.

SUMMARY

The care of allergic patients requires both the allergist and non-allergist. The allergist is needed for the diagnosis and therapeutic guidance of the difficult cases. The non-allergist must handle the numerous simple cases of allergy and must learn how to prevent and manage the allergy arising from drugs. To the allergist and to the allergic patient the non-specialist is indispensable in the cooperation required to carry out management outlined by the specialist. With reasonable effort it is possible for the non-specialist to equip himself for this task and duty.

WHY REPORT COMMUNICABLE DISEASES?

Clarence G. Salsbury, M.D.
James B. Swayne, M.A.
Phoenix, Arizona

50 Years of Reporting

1953 marks the 50th Anniversary of compulsory reporting of contagious diseases in Arizona. The legislative act of 1903 creating the Territorial Board of Health established the legal framework for reporting. Since this original legislative enactment is still a part of State law, it is of more than historic interest:

> 68-303. *Report of Contagious Disease*—If it shall come to the knowledge of any person that a contagious, epidemic, or infectious disease exists he shall immediately report in writing to the Board of Health having jurisdiction the name and place of residence, if known, of every person affected with such disease and if he is the attending physician he shall report not less than twice in each week the condition of the person afflicted and the state of such disease. (Laws 1903, Ch. 65).

Federal legislation on collection of morbidity data preceded the Arizona enactment by about 25 years. In 1878, Congress authorized the U. S. Public Health Service to collect data for use in connection with quarantine measures against such pestilential diseases as cholera, smallpox, plague and yellow fever. (1) In 1893, another law was enacted authorizing the U. S. Public Health Service to collect weekly data from states and municipalities. In 1902, the Surgeon General was authorized to provide forms for the collection, compilation and publication of communicable disease data. Throughout much of its existence in Arizona, the program has been a cooperative federal-state-local venture. It has been modified somewhat from time to time to reflect changing conditions, but essentially has always involved the notification of health authorities of the names and addresses of persons with communicable disease.

Recent Developments Nationally

The latest major change nationally was made in 1951 when a committee of epidemiologists and

statisticians met at the Communicable Disease Center of the Public Health Service and viewed the list of reportable diseases to determine those which remain of national interest and to consider methods of improving the mechanisms for obtaining data. Following this meeting a revised national list of diseases was adopted and a procedure set up for publication weekly of brief narrative reports on epidemics and occurrences of rare disease — these reports to be channelled from local health authorities and epidemiologists through state health officers to the Public Health Service. This latter step was taken to supplement the existing system of weekly reports. One of the factors behind adoption of this mechanism for exchange of information was the possibility of biological warfare with the resultant need for a fast system of epidemic intelligence. By rapid amassing of information from all over the country, possibly significant events can be quickly screened and early control measures taken when indicated.

Recent Developments in Arizona

A radical change in the system of collecting communicable disease data was made in Arizona in January 1953. The former system was based on weekly numerical postcard reports from physicians supplemented by individual case reports on a fairly long list of diseases including tuberculosis, syphilis, gonorrhea, poliomyelitis, brucellosis, typhoid, etc. Several different types of case report forms were used — the type used depending on the disease.

Weekly postcard reports on the number of cases were eliminated under the new system. A single case card was adopted which can be used for any reportable disease. A brief description of the reporting system together with a cut of the report card and envelope is presented in the accompanying exhibit, "How to Report Communicable Diseases."

Value of Reports

Discussions of the value of any statistical reporting program are apt to fall into generalities which neither inform nor motivate desirable action. It is hard to avoid generalization and still retain brevity in a discussion of the value of communicable disease reports. A truly adequate statement must consider separately the special characteristics of each disease — the nature of available prevention and control measures, how the program actually operates, and the status of scientific research and possible need for information on incidence to help in developing new preventive measures.

Such a statement on value or use of communicable disease reports must also consider the needs of a wide variety of users. A list of recent special requests for morbidity data received by the State Health Department includes such voluntary health agencies as the National Foundation for Infantile Paralysis, the National Tuberculosis Association, various government agencies, newspapers, magazine feature writers, commercial pharmaceutical firms, research organizations, and schools of public health. The data receives an even wider distribution by the U. S. Public Health Service which regularly compiles and publishes data received from each state and territory.

The uses made of communicable disease data are constantly changing and it is not far-fetched to believe that the next 12 months may see some new use arise which cannot be anticipated today. The evolution and mutations which have occurred will be evident from the discussion which follows.

Disease Prevention and Control

The original purpose of communicable disease reporting was to enable officials to enforce quarantine measures. Today more emphasis is placed on preventive measures and less dependence on quarantine. This shift in emphasis, however, has not changed the need for case reporting.

There is a group of virulent diseases on which reports are required such as smallpox, diphtheria, rabies, malaria, and typhoid fever which have been virtually eliminated. The conquest of these important contagious and infectious diseases is one of the major triumphs of science, medicine, and public health. The great gains made in the control of these diseases, however, cannot be retained without continuance of control measures. Knowledge of even a single occurrence of any of these diseases is important. The report rings the alarm which indicates something has gone wrong with control measures; it makes it possible to bring community forces into action so that defects in the control program can be eliminated and further spread of the disease prevented.

There still remain a number of contagious and infectious diseases for which control measures are available but which continue to be quite common. Control programs such as those for

tuberculosis and venereal disease cannot operate effectively without case reports. By way of illustration, contacts cannot be followed up and brought to treatment unless physicians report the cases which they diagnose. Such follow-up, it should be stressed, is made only with the express permission of the physician.

Gamma Globulin Allocation

A new use of communicable disease incidence data which could not have been anticipated even a year ago is for allocating the limited supplies of gamma globulin. With the recent discovery that gamma globulin appears to afford a measure of temporary protection against polio by reducing the severity of paralysis, the potential demands on the limited supplies available require some fair system of allocation which will assure that available supplies are utilized where the need is greatest. Accordingly, each state will receive an allocation for polio based on the median number of cases reported during the period 1947-1951 inclusive. Emergency allocations for polio will then be made where severe outbreaks occur — the evidence of severity being officially reported cases. Parenthetically, it should be said that during the last polio season (1952) the bulk of reports were received from four to eight weeks after onset, and then in many instances only after follow-up of leads received from sources other than the attending physician.

To improve allocation of gamma globulin, the U. S. Public Health Service has requested that reports on polio cases be provisionally classified as paralytic or non-paralytic. This classification is necessitated in part by the high degree of uncertainty in the diagnosis of non-paralytic cases and the need to have knowledge of severe outbreaks so that officials responsible for allocation of supplies can more accurately determine the areas where need for additional supplies is greatest. The State Health Department joins the Public Health Service in requesting that physicians tentatively classify polio cases as paralytic or non-paralytic when submitting the original report on a case.

The danger of shortage of gamma globulin demands extreme care in utilizing available supplies for measles and infectious hepatitis. Accordingly, the State Health Department has adopted the policy that supplies will be allocated only where reported data show that need exists. This policy is influenced somewhat by the knowledge that if a really acute shortage occurs requests by the state for supplementary supplies for use with measles and infectious hepatitis will probably be met only if factual data are available to support the request.

Limitations of Mortality Data

In the past, considerable reliance could be placed on mortality data from death certificates to provide an index of the incidence or prevalence of certain communicable diseases. However, with the rapid forward strides of science and medical practice, mortality from most of the communicable diseases has been or is rapidly being virtually eliminated. For some diseases, however, the decline in mortality has not been accompanied by a proportional decline in incidence. This is true of tuberculosis where conclusions as to progress made in control may be quite false if based on mortality data alone. For this reason, it is more important than ever to improve tuberculosis reporting so that it will be a sensitive indicator of problems and progress toward the goal of eliminating the disease as a public health problem.

Inadequacy of Numerical Reports

For many years prior to 1953, Arizona collected communicable disease data through a system which made use of weekly numerical postcard reports from physicians, supplemented by individual case reports for a number of diseases. The elimination of the weekly postcard reports in January 1953 can in no sense be considered an Arizona innovation. A national study in 1950 of morbibdity reporting procedures used by the various states showed only three were using weekly reports from physicians, giving totals by disease. The remaining states all depended solely on individual case reports which gave as a minimum the name and address of the patient. (2) As far back as 1936, Dr. Carl Buck, then Field Director of the American Public Health Association made the following comment in a survey of Public Health in Arizona: (3)

"The present system of reporting on a card which merely indicates the number of cases of certain diseases and gives nothing concerning their specific location is almost useless and should be immediately abandoned. Cards should be supplied to physicians for reporting communicable diseases and such card should provide for all necessary pertinent data concerning that case, particularly name, age and specific address."

It will have been noted that the original legislation which required reports of contagious dis-

eases required an individual case report giving the "name and place of residence, if known, of every person affected with such disease". Our research does not disclose when or why a shift to numerical totals was made nor do we know why Dr. Buck's recommendation for elimination of weekly postcard reports was not carried out. We believe that the principal factor may have a reliance on the weekly postcard to obtain clues for follow-up to secure individual case reports.

The weekly numerical postcard report was simple to complete, but experience showed that it invited estimates and errors. Some physicians based their weekly reports on memory rather than referring to office records before preparing their reports. Many saved the reports and sent several weeks' reports in at one time. Follow-up on several "tularemia" outbreaks showed that the reporting physician had intended to report "syphilis" – the preceding item on the alphabetical list of diseases. In some instances the same tuberculosis cases were reported week after week. This was probably due to failure of an office assistant to understand that only new cases should be reported. These types of errors were discovered because they involved diseases for which case reports were requested. The amount of error in tabulation of diseases for which case reports were not requested can only be guessed at.

Case Reports Essential

Case reports giving name, address, and certain basic facts such as age, sex, race, and date of onset are basic to good morbidity reporting. Accuracy is improved by obtaining names, since duplicates and previously reported cases can be eliminated. Efforts to improve reporting can be extended because health departments can check on reporting of cases which came to their knowledge from sources other than physicians.

Addresses are essential for statistical allocation of cases to specific counties, cities or smaller areas within cities. The seasonal distribution of a disease is only available when date of onset is reported. Data on geographical distribution correlated with date of onset is basic to many epidemiologic studies. The age, sex, and race distribution is often fundamental for research.

Apart from statistical considerations, names and addresses must be reported for any disease where quarantine or follow-up of suspects is a part of the control program or if the physician wishes to refer cases for public health nursing services. The case report is also essential for epidemiological follow-up on cases to determine factors responsible for origin and spread of an outbreak.

The foregoing is by no means a complete resume of the interests of the users of communicable disease data, but it suggests the reasons which impelled inclusion of the minimum core of basic information on the case card. Although the demands for other types of information are great, a real effort was made to include a minimum number of items because of the demands on the physician's time and the desire not to make the system unworkable because of the number of items required.

The shift from weekly postcard reports to complete reliance on case reports required two basic essentials. First, a simple case card which could be used for any disease. Exploration of the experience of other states showed that California had recently adopted a single case card. Using the California card as a basic pattern, a few modifications were made to adapt the card to Arizona's needs. The second essential was a reduction in the list of diseases to the very minimum consistent with a good health program. Following this review, it was decided not to require case reports on influenza, chickenpox, german measles, impetigo, mumps, and ringworm.

Influenza is a disease of considerable public health significance because of the disability and economic loss it causes. It was not included on the list because experience has shown that reporting is notoriously inadequate due to the lack of use of specific diagnostic procedures, similarity in symptoms to other common diseases, and the vast number of cases which occur in epidemic periods. New techniques are being developed on an international and national level in an attempt to obtain the data needed for research and control.(4) Although case reports are not required for influenza or the various childhood diseases listed in the preceding paragraph, physicians are requested to report unusually high incidence.

Criticism has been received because measles was included on the list of diseases. We have already seen the value of measles information in the allocation of gamma globulin, and have noted the difficulties encountered with numeric reports where names and addresses are not given. The authors recognize, however, that the high incidence of measles during certain periods

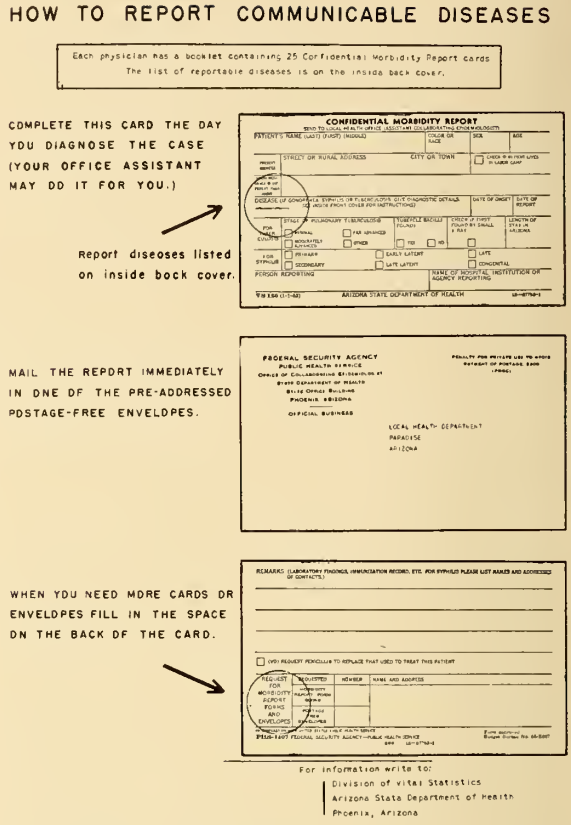
creates a real problem. This matter of securing data on incidence of measles will be reviewed again and an effort made to arrive at a satisfactory solution. Comments and suggestions from all interested persons on this matter or on any aspect of the reporting program will be appreciated.

Reporting Lacks

The compiled data on reportable disease suffer from all or at least nearly all the disabilities that a statistical series can have and still survive. These disabilities include gross failures to report, bias due to difficulties of diagnosis, and human carelessness. All these factors are interrelated, but perhaps the greatest single fault is incompleteness. Obviously cases which do not seek medical treatment cannot be reported, but there are tremendous gaps even for those cases which do seek treatment. When the weekly postcard system was used there were relatively few weeks when even 50 percent of the physicians submitted the postcard report. For tuberculosis, where there is a fairly extensive case finding program, almost two out of three deaths which occurred in Arizona in 1952 had never been reported as a case.

Resistance to communicable disease reporting, apart from the question of case reports on measles, seems largely to center on two objections. First is the desire to protect the confidential nature of the doctor-patient relationship. The most pertinent comment here is that the local and state health departments as custodians of the records take all reasonable means to protect the privacy of any individual whether he be the patient of a private physician or of a public clinic. Since reporting is a legal requirement which recognizes the primacy of the public interest, there seems little moral or ethical grounds for objection as long as the records are not abused. The second principal objection to reporting communicable diseases is the amount of work required of physicians who are greatly overburdened. Most physicians have office assistants to relieve them of routine work, and preparation of the simple case report card is routine. The physician's signature is not required on the report card although name of the physician is requested. The physician reader may forgive the sly suggestion that case reporting would be improved if preparation of cards were turned over to office assistants 100 percent.

With all the shortcomings of the case reporting program it is fair to ask, "Why waste time and money compiling figures which are incomplete and inaccurate?" One answer is that the reported statistics provide basic clues for estimating trends in prevalence and the size of a disease problem. If the user is aware of the limitations of the data and makes allowance for the various factors which affect thir interpretation, he may derive useful information which is available from no other source. Without case reporting, other more expensive and less satisfactory means would be required for case finding and for developing the basic data needed for planning and research. The greater the completeness of reporting the less waste there is in operation of public health programs since less effort must be directed toward case finding efforts. The physician who regularly and promptly submits reports not only has the satisfaction of observing the law, but makes an important contribution to public health.



1. National Morbibdity Reporting Manual of Procedures; National Office of Vital Statistics, Public Health Service, Washington, D. C.
2. Morbidity Reporting Procedures in State, Territorial and Independent City Health Departments; National Office of Vital Statistics, Public Health Service, Washington, D. C. (January 1951).
3. A Survey of Public Health in Arizona; Carl E. Buck, Dr. P. H., 1936.
4. Influenza Study Program in the United States; Public Health Reports, Vol. 67, No. 12.

PHOENIX Clinical CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 24

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A six-and-one-half-year-old boy was admitted to the hospital because of rapid weight gain, growth of pubic hair and enlargement of the penis.

On routine examination nine months before admission, he had been found in good health, with normal development, weighing 44 pounds. The blood pressure was 100 systolic, 60 diastolic. The genatalia were noted as normal. Approximately six months before admission, however, he began to gain weight rapidly and to develop pubic hair and penile enlargement. He was otherwise completely asymptomatic and had been very energetic and active, with good muscular strength. He had a good appetite without special preferences, althought he ate a great deal of meat and potatoes. There was no special craving for salt or sugar. There were no voice changes, development of axillary hair, acne or other skin changes.

The past history revealed that he was born in breech presentation at term and weighed 6 pounds, 10 ounces. Weight gain and development were normal.

A review of the systems was negative except for an episode of "abscessed ears" and tonsillectomy eighteen months previously for frequent upper respiratory infections. He rarely wet the bed, and there were no other genitourinary symptoms.

Physical examination showed a well developed boy. The weight was 65½ pounds, and the height 46 inches. He seemed very plump, with prominant abdomen and hips. The neck and cheeks were fat. Examination of the head, neck and chest was negative. The heart was slightly enlarged to the left. The rate was normal, and there was a Grade II pulmonic sytolic murmur. An electrocardogram gave a normal tracing. The abdomen was plump and full, but no masses were palpable. There was definite, kinky pubic hair. The penis measured 7.0 cm. in length and 6.3 cm. in circumference. The testes were small and measured 1.9 cm. in cross section. The skin was clear, and there was no acne or unusual pigmentation. There was no axillary hair. Neurologic examination was negative.

The temperature was 99.2 F. the pulse 100, and the respirations 22. The blood pressure was 132 systolic, 96 diastolic.

The urine had a specific gravity of 1.022. The tests for sugar and bile were negative. There were rare red cells and white cells in the sediment. The blood hemoglobin was 14 gm., and the white-cell count 7700, with 78 per cent neutrophils, 14 per cent lymphocytes and 8 per cent monocytes. The eosinophil count was 112 cells per cubic millimeter. The serum chloride was 106 milliequiv., the sodium 140.4 milliequiv. per liter. The nonprotein nitrogen was 17 mg., and the fasting blood sugar 86 mg. per 100 cc. (the blood sugar of a specimen taken two hours after breakfast was 97 mg). A sample of sweat contained more potassium and less chloride per liter than normal. The urinary 11-17 oxycorticosteroid was 0.2 mg. per 24 hours. The 17-ketosteroids were 6.6 mg. per 24 hours.

X-ray films of the right hand and wrist indicated a bone age of seven years. Films of the skull failed to show any significant changes; the bones were of normal texture and density. The pituitary fossa was intact. Chest films showed clear lung fields. The heart was at the upper limit of normal size. The aorta was prominent. Anterior and posterior views of the abdomen showed normal appearance of the left kidney, spleen and liver. The right kidney was obscured by intestinal contents. There was no evidence of abdominal tumor.

On the fourth hospital day an operation was performed.

DR. LOUIS B. BALDWIN

This six year old boy had precocious sexual development over a period of six months with gain in weight, growth of pubic hair and enlargement of the penis without proportional enlargement of the testicles. There were none of the other evidences of puberty, such as, change in voice, the development of axillary hair and acne.

It is further to be noted that he appeared perfectly well but that the heart was slightly enlarged and that he had an elevated blood pressure for his age.

The laboratory studies were all normal with the exceptions of a possibly slightly lowered blood potassium and the statement that, "a sample of sweat contained more potassium and less chloride per liter than normal."

This brings us to a consideration of the various causes of precocious sexual development in the male.

Pineal tumors may produce precocious sexual development. As a matter of fact precocity is present only exceptionally in tumors of the pineal, and it is now felt that pubertas praecox in pineal tumors is due to pressure exerted by these neoplasms on the contiguous hypothalamic centers and not to a hormone elaborated by the pineal body. This condition seems untenable in our case because of the absence of symptoms of increased intracranial pressure with headache, vomiting, and failing of vision which are almost invariably the first symptoms noted. On the other hand the most important character distinguishing these cases from suprarenal cortex or anterior lobe pituitary disorders is the absence of hypertrichosis. This circumstance isolates this specific hypergenitalism from those related to other ductless glandular dyscrasias. It is interesting to note that Weinberger and Grant collected 17 cases of precocious puberty of whom 3 were females. In all these 17 instances there was disease of the hypothalamus with no evidence of pineal, ovarian, or adrenal pathology. Mid brain tumors were the most common findings associated with this clinical syndrome, although in isolated instances diffuse mid brain inflammatory lesions, such as, encephalitis and non specific inflammations of the brain as well as degenerative encephalopathies were the only abnormalities noted. In these hypothalamic cases there is somatic growth, enlargement of the genitalia with active libido and spermatogenesis.

Although no pituitary tumor has been known to produce precocious puberty or true virilization as its sole manifestation relatively minor virilization symptoms have been observed in association with acromegaly. In pituitary basophilism there may also be precocious puberty but usually associated with the metabolic disturbances characteristic of Cushing's syndrome. It is likely that the virilizing manifestations both in acromegaly and pituitary basophilism are mediated through the adrenal cortex. Experimentally it is entirely clear that the pituitary influences the size of the adrenal cortex considerably. Smith demonstrated that experimental hypohysectomy caused atrophy of the adrenal cortex.

The normal films of the skull with the pituitary fossa intact does not rule out a basophilic adenoma as these are small tumors, but the absence of symptoms pointing to either acromegaly or pituitary basophilism rule out disease of the pituitary gland to account for the precocious puberty in this case, as does the normal blood eosinophile count.

Malignant tumors of the thymus have rarely been associated with precocious puberty. Three such cases were originally reported by Layton, Turnbull, and Bratton and in each instance marked adrenal cortical hyperplasia was found, in addition to a carcinoma of the thymus. The syndrome produced in these patient is indistinguishable from true Cushing's syndrome.

Neoplasms of the interstitial cells of the testis, the so called Leydig's cell tumors are very rare. Only 40 cases have been reported in the literature by the end of 1949. Of these 11 have been in children. Nation, Edmondson, and Hammack found that 21 collected cases were benign and 5 malignant. Malignant tumors have only been observed in adults. They are characteristically small and in several instances they escaped recognition by the patient. In some cases even the physician could not be certain of the existence of a tumor in the testicle. In this event reliance must be placed on the consistency of the testis as compared to that of the other one. It is usually encapsulated.

Clinical manifestations of an endocrine type were present in one third of the reported cases of Leydig's cell tumor. The majority of these were boys with precocious sexual and somatic development. It is important to emphasize that this is a pseudosexual precocity. Since spermatogenisis is absent. The endocrine effects of Leydig's cell tumors are best studied in the afflicted child. Eleven cases in children have been reported in the literature, and it is important to realize that all — presented definite evidence of premature androgenic stimulation, characterized by precocious appearance of puberity. In some, precocious somatic development was also present. The tumor was benign in every case and was accompanied by gynecomas-

tia in one instances. In all cases developmental changes were first noted about the fifth year of life. After orchidectomy regression of sexual precocity occurred completely in two, partially in three and not at all in the remaining cases. Reports of hormone essays in patients with Leydig's cell tumors were very meagre. Urinary gonadotrophin and estrogen have been quantitated in only one case by Masson and regarded as slightly elevated. The urinary 17—ketosteroids were greatly increased in this same case.

Adrenal cortical hyperfunction in the prepubertal period is more common in females than in males. During this period the underlying lesion is usually a tumor, and most frequently a malignant one. The metabolic abnormalities of Cushing's syndrome are often seen in association with adrenal cortical hyperfunction in the prepubital group and generally are associated with mild virilizing manifestations. The question always arises if we are dealing with a tumor of the adrenal cortex, or one of the other conditions already discussed. In the female arrhenoblastomas and other tumors of the ovary have to be considered as well as such rare condition as hyperostosis frontalis interna or polyostotic fibrous dysplasia (Albright's Syndrome).

Constitutional precocious puberty is far more common in females than males. The importance of this condition lies in its differentiation from the pathologic causes of true or pseudosexual precocity. There are no statistics as to the actual incidence of this physiologic syndrome, but it undoubtedly is one of the most common causes of isosexual precocity. In the male there is enlargement of the genitalia and testes, spermatogenesis as well as skeletal precocity.

In the attempt to make an accurate diagnosis we wonder whether we have an instance of over activity of the adrenal cortex due either to simple hyperplasia or to a malignant tumor. In our case the important laboratory tests were made and the only possible abnormalities were a slightly low blood potassium and an elevation of the potassium in the sweat with a lowered sweat chloride. These findings in addition to the body contour, which showed moderate obesity with prominent abdomen and hips, and the slightly elevated blood pressure might indicate a questionable Cushing's syndrome such as occurs in adrenal cortical hyperfunction. But there was no palpable abdominal mass. For the study to be complete there should have been pyelographic studies and possibly perirenal insufflation for attempted visualization of an adrenal tumor.

In would seem logical to assume that an exploratory operation was performed to find a possible adrenal tumor. In hyperfunction of the adrenals in view of the relationship of the adrenal cortex to electrolyte metabolism, notably that of sodium, chloride and potassium one might anticipate that some alterations in the values of these ions might be encountered in patients with cortical hyperfunction. But Willson, Power, and Kepler, in a series of more than 30 cases of Cushing's syndrome 13 of which were due to adrenal cortical tumors, found only three cases in which there were marked changes in the electrolyte pattern of the blood. In regard to the steroids, it is well established that normal men and women excrete both androgenic and estrogenic compounds in the urine. These compounds, however, have their origin not only in the gonads but also in the adrenals. To date, 28 steroids have been isolated from the adrenal. The normal average daily urinary excretion of androgen in the male adult as 17—Ketosteroids is 6.3 to 6.8 mgm. and in the female 4.2 to 5.6 mgm.

The normal values for urinary oxycorticosteroids is from 0.12 to 0.34 mgm. in 24 hours. The values for urinary excretion of 17—Ketosteroids in the various diseases producing sexual precocity in the male are as follows:

Hypothalamus (Pineal .....Normal to +

Testes:

a. Adrenal rests Normal to +
b. Leydig's cell Normal to + + + +

Adrenal Cortex:

a. Hyperplasia + to + + + +
b. Tumor + to + + + +

From this brief review of the possibilities I feel that we must exclude a Leydig cell tumor because of the size of the testes, pituitary basophilism from the X-ray and laboratory studies, involvement of the hypothalamus because of the negative findings of brain pathology. This leaves adrenal cortical tumor or hyperplasia of the adrenal cortex or constitutinal precocity which is rare in the male.

Because of the very slightly elevated Ketosteroids for children one hesitates to make a diagnosis of adrenal cortical tumor. But nevertheless this is my diagnosis:

DIAGNOSIS:

Tumor of suprarenal (probably malignant).
Very poor other possibilities:
Hyperplasia of adrenal cortex.
Leydig's cell tumor.

DR. A. J. FILLMORE

This youngster was apparently well up to about six years of age, at which time it was noted that he began to gain weight rapidly; he developed pubic hair and unusual growth of the penis, all other developmental characteristics and manifestations were normal. Such rapid changes as this boy demonstrated must have been alarming, even to a very proud father.

There are a few other physical findings suggestive of an endocrine disturbance: A blood pressure of 132/96 is high for so young a child. And he had begun to show unusual prominence of the abdomen and the hips. His testes were reported as small.

Apparently there is an over production of the masculinizing hormones and the more common causes for an over production of these are primary hyperplasia of the adrenal cortex or an adrenal cortical tumor.

These disturbances are not common, but are much more common in the female than in the male. It is likely the famous case of Christine Jorgensen, recently reported in the press was such a case.

The principal metabolic actions of hormones, or steroids of the adrenal cortex have been defined as: (1) For the maintenance of electrolyte balance. (2) Regulation of carbohydrate metabolism and (3) Promotion of growth and the development of secondary sex characteristics.

The electrolyte regulating steroid, 11 desoxycorticosterone which is similar to, if not identical with, the synthetic steroid, desoxcorticosterone—causes retention of sodium; chloride; and water, and increases the urinary excretion of potassium and phosphorus.

There are two distinct syndromes attributed to hyperadreno corticisin whether from hyperplasia or tumor. 1st: the adrenogenital syndrone and Cushing's syndrome. It is believed that two different hormones or groups of hormones are responsible for the two syndromes. In order to keep the discussion clear the term *Cushing's syndrome* refers to changes caused by the adrenal cortical hyperplasia and tumors. While the term *Cushing's Disease* refers to those cases in which basophilic adrenomas of the pituitary are present and seem to be responsible for the hormonal changes. When these are absent and the clinical features of the disease are present, the term *Cushing's Syndromes* is applied.

The regulation of carbohydrate metabolism was not disturbed in this youngster as is shown by the fasting blood sugar of 86 mg.% and a non-fasting specimen of 97 mg.%. The process of formation of carbohydrates from the Amino-Acids, glyconeogenesis is governed by the carbohydrate-regulating steroids, of which cortisone, or Compound E is the most widely known.

The most striking changes noted in this young patient are those having to do with the steroids which promotes growth and the development of secondary sex characteristics. And in most cases in males with over activity of the adrenal cortex the primary disturbance consists in excessive secretion of an androgenic hormone. This syndrome of overproduction of the masculinizing steroid varies with the sex and age of the child. The early signs are: enlargement of the penis; scrotum and prostate; the appearance of pubic hair and sometimes facial hair; development of acne and a deep voice. Also a definite increase in height and weight. Our patient certainly had a remarkable growth in his genitals during the interval of nine months, at the beginning of which a routine examination was stated to have revealed no abnormal development. And he had a 20 pound gain in weight during the same period.

It is stated this abnormal growth is not a true sexual precocity because spermatogenesis does not take place. In precocity of hypothalamic origin both penis and testes are enlarged. In sexual precocity of constitutional hypothalamic origin, the urinary 17—Ketosteroids rise only to adolescent or adult levels while in the patient with the adrenogenital syndome they may be far in excess for an adult. In one case of a negro girl with a tumor of the adrenal cortex she excreted 200 mg. per 24 hour before the tumor was removed. After removal the steroid urinary excretion dropped to 2 mg. per 24 hour. Our patient is reported to have excreted 6.6 mg. in 24 hour, which is 3 to 4 times higher than normal for the average of his age. The *increase*

in excretion of 17 Ketosteroids is the most important laboratory feature of this syndrome and in male infants and young children it is necessary for a diagnosis of an adrenogenital syndrome.

One of the most important functions of the adrenocortical secretions is the control of the electrolytes. It is generally agreed the major action of the electrolyte controlling hormone is on the kidney, decreasing the excretion of sodium and increasing that of potassium.

There was no apparent disturbance in the electrolyte equilibrium in our patient as it is reported he had a serum chloride of 103 Milliequiv. per liter; and sodium 140 Milliequiv. per liter both of which are within normal limits. The serum Carbon dioxide was not abnormal.

X-ray studies of bones of hand and wrist, and of the skull gave no evidence of disturbance of growth or bony metabolism.

Also x-ray studies of the chest and of the abdomen were not revealing.

It is my opinion that this youngster whose illness was confined to a nine month interval during which time he demonstrated abnormal growth in body height and weight and also abnormal genital development and growth of pubic hair, along with a definite elevation in 17-Ketosteroids excretion, he had an acquired, or post natal Adrenogential Syndrome. Probably due to a malignant *adrenocortical tumor.* Had the disturbance been due to adreno-cortical hyperplasia the abnormal growth and development of the genitals would have been earlier manifested.

DIFFERENTIAL DIAGNOSIS

Dr. Fuller Albright: This seems like a straightforward case, but one never knows in these exercises.

We know that this patient was producing too much androgen. The rapid somatic growth and the early development of the genitalia are evidence of this. Besides, the 17–ketosteroid excretion was 6.6 mg. per 24 hours, which is very high for a child of this age (normal value, 0 mg.). There are two tissues in the body that produce androgen: the reticular cells of the adrenal cortex and the Leydig cells of the testes. We therefore expect to find some disorder in one of these two tissues.

I will first discuss the reticular cells of the adrenal cortex. The first possibility I would consider is a tumor, benign or malignant, of the adrenal cortex. Everything in this case is compatible with such a diagnosis. The rather short duration and rapid progress of the symptoms favor this diagnosis over some of the others, and this would be my first choice. Furthermore, by the law of averages I favor a malignant tumor. In my experience most of these tumors have been left-sided; so I would guess a left-sided tumor.

The second possibility I would consider is hyperplasia of the reticular cells of the adrenal cortex. This is a very interesting condition. It occurs mostly in females, and there is often a family history in the siblings. The typical story in females is usually as follows: together with certain characteristic changes in the external genitalia, the child is born with a large clitoris; she grows normally for the first one to eight years; she then develops axillary and pubic hair and grows rapidly, which suggests that androgen is being produced in excess somewhere in the body; finally, because of early epiphyseal union secondary to the excess of androgen, she stops growing at an early age. The net result is that her final height is about normal.

The reticular cells of the adrenal cortex have an interesting life history as worked out by Dr. Sam S. Blackman, Jr. The fetal reticular zone is well developed and apparently functioning; in the first two weeks of postnatal life it retrogresses but leaves behind some cells that give origin to the postnatal reticular zone; these cells lie dormant until about puberty, when they again show signs of activity and produce reddish-brown granules.

The life history of the reticular zone in cases with hyperplasia of the reticular cells is modified. In the first place the fetal reticular zone is increased; in the second place the cells that give rise to the adult reticular zone lie dormant only one to eight years, rather than up to the usual time of puberty.

We are now in a position to interpret the clinical manifestations. The anatomic changes at birth are undoubtedly the result of increased adrogen production by the hyperplastic fetal reticular zone; the failure of axillary and pubic hair to develop in the first few months is due to the latent period when the fetal reticular cells lie dormant; finally, the rapid growth of axillary and pubic hair and of the external genitalia, if it does occur, is evidence of the recrudescence of the reticular cells.

The reticular-cell hyperplasia not only is much less frequent in the male but also runs a somewhat different course. It is very apt to be associated with Addison's disease, because of the encroachment of the reticular cells on the other layers of the adrenal cortex.

Against the diagnosis of hyperplasia in this particular case are the failure of the genitalia to be enlarged at birth and the absence of any clinical or laboratory findings suggesting Addison's disease (for example, the serum electrolyte values and electrolyte values for sweat). On the other hand the onset of pubic hair and of rapid growth at six years of age is about the right time one would expect if this were the diagnosis. Furthermore, there must be cases in the male in which the activity of the fetal reticular zone is not sufficient to cause noticeable enlargement of the male genitalia. Fnally, there must be male patients who do not have Addison's disease. Adrenocortical hyperplasia is my second choice.

I will now turn to possible disorders of the Leydig cells. First, a word about testicular function: the hypothalamus, by way of a neurohumeral pathway, stimulates the anterior pituitary body to release follicle stimulating hormone (FSH) and lutenizing hormone (L.H.) These hormones, in turn, stimulate the testes, FSH leading to tubular development and LH controlling production of testosterone by the Leydig cell.

The first possibility we might consider here as a cause of increase in androgen production is a tumor of the Leydig cells themselves. This is very rare. No such tumor was felt. In the only case I know of with this diagnosis, the 17-ketosteroid excretion was over 1000 mg. as compared with 6.6 mg. per 24 hours in this case. I think we can dismiss this diagnosis as possible but unlikely.

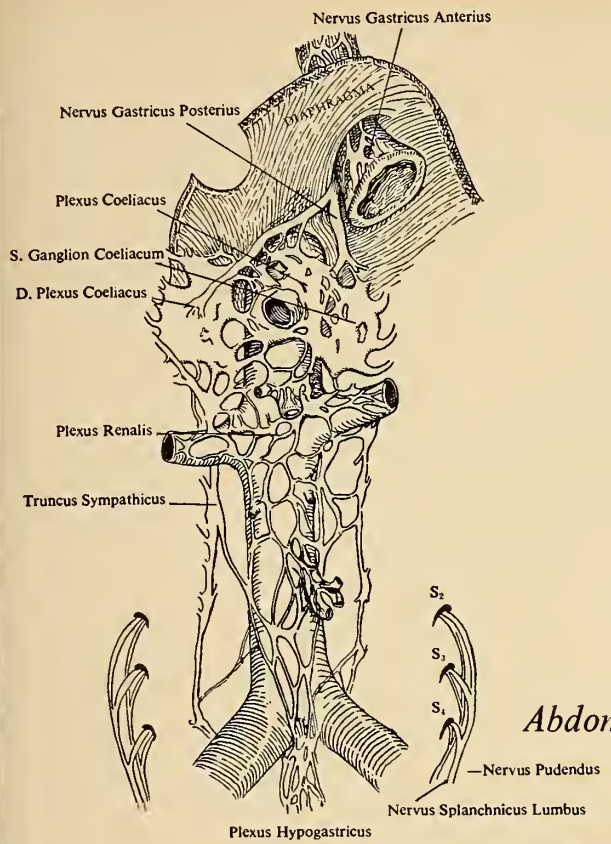
One might consider a tumor of the pituitary body giving off too much LH. Such a diagnosis would seem reasonable, but I never heard of a pituitary tumor that did this.

The next possibility to consider is a disturbance in the hypothalamus, releasing FSH and LH and stimulating all functions of the testes. One meets this condition in the so-called "pineal syndrome." It is initiated, not by the hormone of the pineal body, but by any tumor in the region of the pineal body. Against such a diagnosis in the case at hand is the failure of the testes to be enlarged. The size of the testes is dependent almost entirely on the size of the tubules, and in the pineal syndrome development of the tubular, as well as the Leydig cells, occurs. There are no findings to suggest an intracranial lesion, and I think we can dismiss this diagnosis.

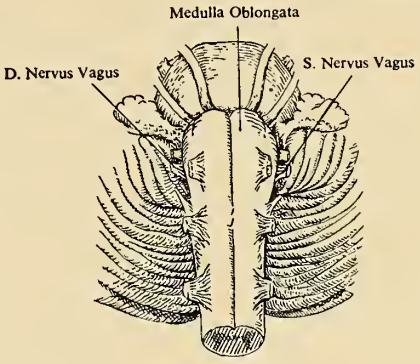
Finally, one comes down to the possibility of a selective overproduction of LH without FSH. This might cause stimulation of Leydig cells without stimulation of tubules. I had never heard of such a syndrome until recently when Dr. Nathan Talbot mentioned it. I leave this for him to discuss. Such a diagnosis would seem to be compatible with the findings in this case, and I might put it down as a third choice.

It is now the vogue to divide adrenocortical hormones into three functional types, one for each layer of the gland. The innermost reticular layer is thought to produce the gluconeogenic, "sugar" or "S" hormone; the outermost glomerulosa layer is thought to produce the salt and water, sodium or "Na" hormone. It may be of interest to see what evidence there is for overproduction of each one of these hormones by the tumor that I have diagnosed. We have already discussed the androgenic hormone. Against overproduction of the gluconeogenic hormone are the failure of the eosinophils to be decreased, the normal value for 11-17 corticosteroids and the rapid growth. In favor of some overproduction of the "na" hormone is the hypertension and the low chloride and high potassium values in the sweat. It would seem, therefore, that this tumor was producing a large amount of androgenic hormone, a normal amount of the gluconeogenic hormone and a slightly increased amount of the "Na" hormone.

Dr. Nathan B. Talbot: Our preoperative diagnosis was the same as that just given by Dr. Albright. In the differential diagnosis the condition of greatest interest was a syndrome that we have now seen in a number of young boys. It is characterized by precocious masculinization, starting in early life. The testes are of normal size for age. The urinary 17–ketosteroid output is either normal or slightly elevated, and the urinary gonadotropin (FSH) assay is apt to be negative for 3 and 6 mouse units per 24 hours. Exploration of the adrenal glands of such patients fails to reveal either a tumor or bilateral hyperplasia. On the other hand, testicular



Central origin of the vagus nerves (parasympathetic)



Abdominal autonomic plexus (sympathetic)

Control of Gastric Motility and Spasticity in Peptic Ulcer with Banthīne®

"The need[1] for suppressing gastric motility and spastic states is . . . fundamental in peptic ulcer therapy. Since the cholinergic nerves are motor and secretory to the stomach and motor to the intestines, agents capable of blocking cholinergic nerve stimulation are frequently used to lessen motor activity and hypermotility."

Banthīne[2] "has dual effectiveness; it inhibits acetylcholine liberated at the postganglionic parasympathetic nerve endings and it blocks acetylcholine transmission through autonomic ganglia."

It has been shown[1] to diminish gastric motility and secretion significantly as well as intestinal and colonic motility.

The usual schedule of administration in peptic ulcer is 50 to 100 mg. every six hours, day and night, with subsequent adjustment to the patient's needs and tolerance. After the ulcer is healed, maintenance therapy, approximately half of the therapeutic dosage, should be continued for reasonable assurance of nonrecurrence.

Banthīne® (brand of methantheline bromide) is supplied in: Banthīne ampuls, 50 mg.—Banthīne tablets, 50 mg.

It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

1. Zupko, A. G.: Pharmacology and the General Practitioner, GP 7:55 (March) 1953.

2. McHardy, G. G., and Others: Clinical Evaluation of Methantheline (Banthīne) Bromide in Gastroenterology, J.A.M.A. *147*:1620 (Dec. 22) 1951.

SEARLE Research in the Service of Medicine

biopsy reveals marked development of the interstitial cells of Leydig without more than minor evidences of testicular tubular development. It is believed that the precocity is due to a production of androgenic hormones by the Leydig cells and that these in turn have been precociously developed and activated by pituitary interstitial-cell-stimulating hormone (ICSH). It is further believed that the pituitary body has been activated to ICSH production by some sort of hypothalamic disturbance. Since most of these patients have shown no neurologic evidences of an intracranial lesion, it seems probable that the hypothalamic disturbance is of a functional nature rather than an organic, structural defect. Parenthetically, it may be added that the testicular interstitial cells occupy but a small volume; hence, it is possible for extensive interstitial-cell hyperplasia to occur without a clinically definite increase in gross testicular size. It is growth of spermatic tubules that accounts in the main for the increase in testicular size during adolescence.

So far as testicular size and masculine development were concerned, the patient under consideration corresponded to patients with the condition just described. On the other hand, he differed in the age at onset of precocity, which in his case was much too late for the above syndrome. He also differed in water and electrolyte status, for he had signs (questionable edema of the face, slight hypertension and cardiac enlargement) suggestive of a pathologic increase in the production of adrenocortical hormones of the type that cause sodium and water retention and potassium diuresis. To gain some objective information concerning the present patient's adrenocortical "Na-K" hormone status, Dr. William Locke applied a sweat electrolyte test on which he has been working recently. It might be interesting to hear the results of these studies.

Dr. William Locke: Methods for estimating the rate of secretion of the "Na-K" hormone are not so satisfactory as the methods for the other cortical hormones, as Dr. Albright and Dr. Talbot have said. In this case the hypertension may have indicated some overproduction of that hormone. The patient did not have hypochloremic alkalosis, which is sometimes associated with Cushing's syndrome and which has been attributed to an overproduction of the "Na-K" hormone in that condition. We have been studying variations in the electrolyte concentrations in sweat, with a view to using them as an index of "Na-K" hormone production. This subject was first studied by Dr. J. W. Conn, who showed that desoxycorticosterome acetate has somewhat the same effect on sweat as it has on urine composition—that is, it reduces the concentration of chloride and sodium, and increases the concentration of potassium. In this case the sweat chloride was 10.0 milliequiv., and the potassium 13.2 milliequiv. per liter. Under the conditions of this test one would expect the chloride concentration in the sweat from a normal child to be perhaps three times what it was in this case and the potassium concentration to be approximately half what it was in this case. So we considered our findings to be suggestive evidence of an excessive production of the "Na-K" hormone.

CLINICAL DIAGNOSIS

Carcinoma of adrenal cortex.

DR. ALBRIGHT'S DIAGNOSIS

Carcinoma of adrenal cortex.

ANATOMICAL DIAGNOSIS

Carcinoma of adrenal cortex.

PATHOLOGICAL DISCUSSION

Dr. Oliver Cope: This patient had a tumor of the adrenal cortex. Why were the roentgenograms reported as showing no evidence of a tumor? The answer is that the tumor was small, not more than 3 cm. in its greatest diameter and scarcely large enough to cast a shadow. The roentgenograms were excellently clear, and a shadow was present on either side just above the kidney consistent with that case by the adrenal gland. The shadow on the right was denser than that on the left. In making the incision we anticipated that if a tumor were present it would be on the right side. This proved to be the case.

It is a curious thing, as Dr. Albright has pointed out, that the overwhelming majority of the hyperfunctioning adrenocortical tumors we have encountered have been on the left side. Left-sidedness to me makes no sense so I am always equally suspicious of the right. This is the second right-sided tumor of our series. Left-sidedness is presumably a statistical fluke and I suspect that with time and increased experience the left-sided predominance will also disappear.

Careful search was made at operation for evidence of malignant spread of the tumor. Grossly, the capsule of the tumor was unbroken. No

invaded lymph nodes were encountered. The tumor was excised in toto.

The tumor was transected after removal at the operating table. On the gross examination I made a diagnosis of cancer because of the unevenness of consistence in one area and distortion of the stroma. These gross findings have been present in other malignant adrenocortical tumors and consistently absent in the small, apparently benign, tumors that have been resected from patients with Custing's disease. My experience is too limited for me to be certain but I have a hunch that in such tumors the gross pathology is more reliable than the microscopical. I am therefore fearful of recurrence in spite of my negative search for lymph-node metastases.

Dr. Tracy B. Mallory: The tumor was a well encapsulated nodule of quite variable color with many bright-orange-yellow spots in it, indicating that in portions of the tumor considerable lipoids were present. The microscopical section showed a very variable picture. Cells could be found that corresponded to all the various layers of the adrenal cortex. There were numerous lipoid-filled cells corresponding to the fascicular layer, and also many of the big rather homogeneous eosinophil cells that are found in the reticular layer. There was not a great deal of pigment in the cells in this case. The question comes up whether this tumor was benign or malignant. Encapsulation wound be in favor of its being benign. In some parts of the tumor very atypical cells with giant multiple nuclei were found, which anywhere else in the body would certainly be evidence of a highly malignant tumor. Our experience in adrenal tumors has indicated that marked cellular atypicality of this type may be present in tumors that run a benign course. I think it very probable that if these slides were shown to a group of pathologists they would split fifty-fifty as to whether it was benign or malignant. My impression is that the outlook is relatively favorable although we did call it carcinoma. That may perfectly well be an error.

DIFFERENTIAL DIAGNOSIS IN THE RHEUMATIC DISEASES

From the number of papers appearing in the current literature, this is still a bothersome question, not yet entirely solved by the research departments of the pharmaceutical houses, though some of their literature would almost lead us to think so.

Charley J. Smith, M.D., Denver, Colo., has a very excellent paper in the Rocky Mountain Medical Journal of January, 1953, confined to the differential diagnosis, the only comment on treatment being that "with the discovery and introduction into medical practice of Cortisone and ACTH, which are profoundly beneficial in a variety of rheumatic diseases, it has become more important than ever to establish an exact diagnosis in the early stages of these diseases . . ."

He discusses rheumatoid arthritis and rheumatic fever, degenerative vs. rheumatoid arthritis (with a diagnostic table), special types of rheumatoid arthritis, infectious arthritis, Reiter's syndrome, acute gout, traumatic arthritis. W.W.W.

INTERNATIONAL ACADEMY OF PROCTOLOGY

The International Academy of Proctology announces the establishment and award of a one year Proctologic Research Fellowship in the amount of $1200.00. This Research Fellowship grant has been awarded to the Jersey City Medical Center, New Jersey, to be administered under the direction of Dr. Earl J. Halligan, Surgical Director of the Medical Center.

Dr. Halligan is a former International President of the Academy. The Board of Trustees of the International Academy of Proctology will vote another Fellowship grant of a similar amount at the time of the next Annual Meeting of the Academy. Thus, there will be at least two Research Fellowship studies in progress, in different institutions, under the auspices of the International Academy of Proctology.

WANTED

To associate with or to assist G.P. or Internist in the Area of Phoenix or Tucson. I am interested in internal medicine especially cardiology. I am an American by birth, of the Jewish faith, and am 46 years of age. I have an Arizona Medical license. I am a graduate of State University of Iowa year 1931; have been in active practice since 1932. I have had hospital in-patient and out-patient experience plus much post graduate work.

Write % Arizona Medicine Journal
424 Heard Bldg., Phoenix, Arizona

MEETING NOTICE

1953 Annual Convention of the National Society for Cripled Children and Adults, Nov. 12-14, Chicago.

The PRESIDENT'S *Page*

Through a series of coincidences I gained knowledge this summer of the existence of Spears Chiropractic hospital in Denver, and predict that you will hear more about it. A Tucson physician sent me a many-paged advertisement given him by a patient, made up in newspaper form of testimonials telling of "cures" where other medical and surgical skill had failed. Cancer, polio, multiple sclerosis and numerous other scourges are "cured or remarkably improved". While in Denver one newspaper reported that the wife of a Texas utilities man suffering from advanced cancer was transfered by special train from an eastern medical school to Spears and on advice of the attending chiropractor the special coach and engine made the last part of the trip from Chicago alone because she was in much pain.

I drove around the Spears grounds. It is already a big outfit and additional units are being built in series, probably to accommodate as many as 1,000 patients. Testimonials indicate that patients are being referred by chiropractors from all sections of the country. Tax litigation is in progress, the city maintaining the institution is being operated for profit.

The joker in this is that the physical set-up at first glance might pass for a VA hospital. This thought may have crossed the minds of the builders and the nation's chiropractors. The Denver papers during late August carried a few stories on an inside page about hearings being conducted by Senator Langer (Rep.) of North Dakota, chairman of a senate investigating sub-committee, who opened his Denver phase of committee investigation into an alleged "medical monopoly" and what he called the "conspiracy on the part of the press and the medical profession to discredit the practice of chiropractic." Senator Langer demanded that the VA provide ex-servicemen with chiropractic treatment at tax-payer's expense, denounced the A. M. A. for its stand against indiscriminate hospitalization for veterans with non-service connected disabilities, said he favored expansion rather than reduction of VA services by inclusion of chiropractic, and blasted the press for not giving his remarks front page space equal to that of Dr. McCormick's address before the Rocky Mountain Radiological Socicty. The Honorable Mr. Langer was a patient "incognito" for eleven days prior to the hearings, and according to Dr. Leo Spears "improved considerably." Testimony was taken from chiropractic "benefited" veterans suffering from "polio, multiple sclerosis and nerve disorders" by Mr. Langer, the lone member of the committee present at the hearings.

Edward M. Hayden, M.D.
President

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 OCTOBER, 1953 NO. 10

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford
Darwin W. Neubauer, M.D. ..... Tucson

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

HOSPITAL BEDS

The magnificent new St. Joseph's Hospital adds more than 100 hospital beds to the total number in Phoenix. Good Samaritan Hospital is in the process of adding more. If the old St. Joseph's Hospital is used in part a group of more than 100 beds will be added.

But still there may be a shortage, a shortage which surely will increase as the population grows — as it certainly will.

The physicians can make a real contribution to the solution of this problem in two ways:

1. Do not enter patients into hospitals without sufficient reason.
2. Dismiss patients from the hospital at the earliest possible safe and satisfactory time.

There can be no doubt that at times the physician is put under considerable pressure to hospitalize patients who could do as well at home. This is especially true when patients have hospitalization insurance. But it is the responsibility of the physician to decide the need for hospitalization and not that of the patient nor the patient's family. And, in general, it is best to keep the patient at home during any illness which will respond equally well to home treatment.

It is hardly questionable that many patients are allowed to remain in the hospital for one or a few or even many days after they could properly be sent home. This is usually the doctor's fault, and may at times be due to sheer carelessness. Many hospital bed days could be saved by prompt dismissal of patients.

As pointed out above, the physician's problem in this regard is not always an easy one. If, however, he will keep constantly in mind the goal of using no more hospital bed days than necessary, he will perform a notable public service.

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 10th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 10th OF THE MONTH

Material arriving after that date will be published the following month.

Arizona Pharmaceutical Page

THE SECOND CENTURY – 1852-1953

AS WE GLANCE BACK OVER THE PAST CENTURY OF OFFICIAL OPERATION OF PHARMACY IN THIS COUNTRY, THROUGH ITS PARENT ORGANIZATION, "THE AMERICAN PHARMACEUTICAL ASSOCIATION," WE ARE AMAZED AT THE TREMENDOUS ADVANCES OUR PROFESSION HAS BEEN PRIVILEGED TO PARTICIPATE IN. AS THE YEARS HAVE PASSED DURING THIS CENTURY OF PROGRESS WE HAVE SEEN UNTOLD CHANGES IN OUR SOCIAL AND ECONOMIC ORDER. THIS PRESENT GENERATION HAS LIVED AND IS LIVING THROUGH SOME OF THE MOST MOMENTOUS OF THESE CHANGES.

JUST HOW WE HAVE PROGRESSED IN THE 100 YEARS IS EVIDENT ALL ABOUT US. THE SINGLE PHARMACIST AND HIS APPRENTICE WORKING IN THE SHOP OF 1852 NOT ONLY AS COMPOUNDERS OF PRESCRIPTIONS BUT ALSO AS SMALL-SCALE MANUFACTURERS OF THE PREPARATIONS PRESCRIBED HAVE BEEN REPLACED BY A VERITABLE ARMY OF SPECIALISTS IN PHARMACY, PHARMACEUTICAL CHEMISTRY, PHARMACOLOGY, BACTERIOLOGY AND THE MANY OTHER CONTRIBUTORY ARTS AND SCIENCES. THESE NEW PRACTITIONERS HAVE RECEIVED THE MOST THOROUGH TRAINING IN THEIR PROFESSION. IN THE STATE OF ARIZONA A PERSON STARTING IN THE PROFESSION OF PHARMACY MUST SPEND A MINIMUM OF SIX YEARS IN THE STUDY OF IT BEFORE BEING ELIGIBLE TO BECOME LICENSED TO PRACTICE.

HIS COLLEGE REQUISITES INCLUDE ONE YEAR OF PRE-PHARMACY AND FOUR YEARS OF THE PROFESSIONAL COURSE LEADING TO THE BACHELORS DEGREE. FOLLOWING THIS THE APPLICANT IS REQUIRED TO COMPLETE ONE YEAR OF INTERNSHIP, UNDER THE SUPERVISION OF A PRECEPTOR PHARMACIST.

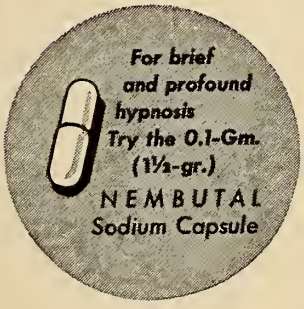
ORIGINALLY PHARMACY AND MEDICINE HAD A COMMON ORIGIN, GRADUALLY SPLITTING INTO TWO WELL DEFINED PROFESSIONS. AS SCIENTIFIC KNOWLEDGE DEVELOPED, IT BECAME INCREASINGLY DIFFICULT FOR ANY SINGLE GROUP TO KEEP PACE WITH PROGRESS IN ALL PHASES OF THE HEALTH FIELD. TODAY WE RELY ON THE PHARMACIST TO DEVELOP AND PREPARE THE MEDICINES REQUIRED TO MEET THE NEED SHOWN BY THE PHYSICIAN'S DIAGNOSIS.

BUT ALL OF THIS IS PAST HISTORY – WHAT OF THE FUTURE? IF WE ARE TO JUDGE THE COMING CENTURY IN THE LIGHT OF THE PROGRESS MADE DURING THE PAST CENTURY WE MUST HAVE A VIVID IMAGINATION AND BE ABLE TO VISUALIZE UNHEARD OF ACCOMPLISHMENTS. EIGHT YEARS AGO WE WERE PERMITTED TO DISPENSE PENICILLIN; THREE YEARS AGO WE RECEIVED OUR PORTION OF STREPTOMYCIN; EIGHTEEN YEARS AGO WE RECEIVED A STOCK OF SULANILIMIDE; TWO YEARS AGO CAME ACTH AND CORTISONE. WE COULD GO ON AND ON WITH A LISTING OF THE HORMONES THE ANTIHISTAMINES THE NEWER ANTIBIOTICS ETC. NEEDLESS TO SAY THE DISCOVERIES AND ADVANCES MADE WITHIN THE PAST TEN YEARS HAVE OVERSHADOWED ALL THOSE MADE IN THE PAST. AS WE CONTEMPLATE THE ADVANCES AND DISCOVERIES WHICH WILL BE MADE IN THE COMING CENTURY OUR IMAGINATION IS REALLY STAGGERED. YOUR DOCTORS WILL HAVE AVAILABLE WITHIN A VERY SHORT TIME MEDICATIONS TO SUCCESSFULLY TREAT MOST OF THE PRESENTLY KNOWN DISEASES. YOU MAY REST ASSURED YOUR PHARMACIST WILL HAVE KEPT ABREAST OF THE ADVANCES AND WILL BE READY TO SERVE YOUR NEEDS AS THE TIME ARISES.



They'd crowd an outdoor cafe...

all the patients who represent
***the 44 uses for short-acting* NEMBUTAL®**



44 PATIENTS? Just look in the picture above. You'll find them all. And with every NEMBUTAL patient, with every NEMBUTAL use, these are the facts that you'll find the same:

1. *Short-acting* NEMBUTAL (*Pentobarbital, Abbott*) *can produce any desired degree of cerebral depression—from mild sedation to deep hypnosis.*
2. *The dosage required is small—only about one-half that of many other barbiturates.*
3. *There's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.*
4. *In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.*

All are sound enough reasons for your prescription to call for short-acting NEMBUTAL. How many uses have *you* tried? Abbott

1-212A

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M. D.

Dr. Arthur Kemmerer, professor of nutrition at the U. of A. College of Agriculture, gave a talk before the American Dietetic Ass'n. in Los Angeles. He is a member of the U. of A. arthritis research group. . . . His major comment concerning the use of ACTH and CORTISONE has not been generally publicized, and seems worth a mention here. Persons with ARTHRITIS apparently do not use PROTEINS in a normal manner. Use of the drugs enables them to metabolize protein, and the symptoms subside during that period. . . . On this subject, mas des pues.

The recently publicized 'DAILY DOUBLE' treatment for TB is double talk. . . . It came from Denver in September and is much the same as if a new, jazzy name for aspirin had been invented. The treatment (isoniazid, etc., plus gradual rehabilitation) is what most everyone else is using. The Denver people eliminate excessive bedrest, but continue therapy for 16 to 18 months . . . . The authors are Dressler and Middlebrook, and they must have a good publicity agent. It may be only coincidence but the name of the lab at the National Jewish Hospital is the 'Hearst Research Laboratories'. . . . Believe it or not, this is the same outfit which stirred up the hopeful last winter by saying that they were decreasing rest to as little as 1 to 3 months. Sanatoria would become obsolete. They back-tracked when investigated by the N T A. . . . This barefoot country Osler holds that such conduct ain't fair.

A further test of antibiotics for INTESTINAL AMEBIASIS has been made at Louisiana State by McHardy and Frye. . . . Terramycin leads the pack (91.5% success in 435 cases). Fumagillin, with its narrow spectrum and direct action is next (86% of 119 cases). Aureomycin cleared 83.4% of 697 cases. . . . It should be emphasized that extra-intestinal lesions (e. g., liver abscess) are not affected by the AB drugs.

Our old friend, the Florida Citrus Commission, sends out a flash bulletin about teen-agers. Their diets are deficient in VITAMIN C, from the rock-bound coast of Maine (Dr. Mary Clayton) to the sunny slopes of Texas (Dr. Pauline Mack). . . . The Commission has its own solution of course, but how about an Arizona angle? Send all the kids to school in Arizona and we will fill them up (6 to 8 ounces every morning, same like Florida) with Arizona orange juice. . . . The gums need Vit. C, they say, and it helps make the cells (as they say in Milwaukee) "togedder schticken".

HEMOPHILIA is rarely seen in general practice. Surgery and other bloody procedures are usually feared and avoided. A recent description of bloodless DENTAL EXTRACTION is of some interest, and you'd hardly ever guess how it is done. . . . A rubber band is fitted tightly around the tooth. It gradually works its way down below the gingival margin and toward the end of the root. The tooth loosens and falls out, after periods ranging from 4 to 200 days. . . . No mention was made of a pain factor.

DR. ALVAREZ SAYS,—That he finds the evidence contradictory as to why some persons are long lived. . . . The Dunbars reported at St. Louis that longevity does not seem to be inherited. They studied the 300 cases of the 1500 White Americans who had lived over 100 years. . . . Dr. A. quotes the late Dr. Raymond Pearl, a great authority on the subject, who believed that if a man could choose his ancestors he could be sure of a long life. . . . Homologous twins often live lives which are nearly the same length. They are like 'duplicate clocks, wound to the same degree of tightness, which run down and stop at the same time'.

CYCLONES of the recent summer gave several HOSPITALS an acid test. They stood up well and learned a lot, some of it fast. . . . Providence Hospital in Waco, Texas, has 250 beds. They were presented with 215 cyclone victims in 2 hours. They admitted 115 and treated 100 as OPDs. Fifty of the latter were turned over to Connall Air Base hospital thru some fine civilian-military cooperation. . . . St. Joseph's Hospital of Flint, Michigan, also has 250 beds, but had a pre-cyclone census of 262. They gave first aid to 120 patients, admitted 78, and took 110 x-rays in one night. The success of the Flint operation was obtained by alerting the employees, gathering all of the staff, and calling in as many ex-employees as possible.

Ravits of St. Paul discusses 'DERMO-FUNGOUS ALLERGY' in MINNESOTA MEDICINE. He agrees with the work of Bloch and Jadassohn, who explain the sequence which can follow a trichophyte infection. . . . A person has a fungus infection (athlete's foot); he recovers; a generalized allergy develops to its height a few weeks after healing; it gradually declines thereafter; a person may react to the fungus or its products by skin reactions ('ids'). The lesions may be less violent and more eczematoid. . . . Skin-testing with an allergen (trichopytin) may be helpful in

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix October, 1953

Question QUIZ
Do you know the answers?

Q. Can doctors help expedite processing of claims?

A. Yes. In fact, the Association wants to pay claims quickly. It will do so if doctors will fill out and return promptly the claim form sent them by the Association.

Q. What standard does the Association use in paying fees?

A. The Association bases its schedule of benefits on the schedule which is used by the Arizona Industrial Commission and which was approved by a committee representing the Arizona Medical Society.

Q. Does the Association pay surgical fees to osteopaths?

A. No. Member benefits are paid only to licensed physicians (M.D.'s).

Q. May HBA members choose their own hospitals and doctors?

A. Yes. Member benefits are paid to any licensed hospital or physician (M.D.) anywhere in the world.

Q. Does the Association make an attempt to set the surgical fee?

A. No. This important decision is left entirely to the doctor and his patient. The actual cost is paid by the Association up to the amount shown in the schedule of fees.

Q. How does the doctor charge the Association for an X-ray?

A. He merely lists the charge for the X-ray on the claim form along with his own charges.

Q. Why does the Hospital Benefit Association have such a low rate of questionable claims?

A. The low rate is due to the fact that enrollment is handled properly by well-trained personnel. Members know just what benefits to which they are entitled.

HBA Surgical Plan Pays For Accident Treatment In Physicians' Offices

Doctors have been generous in their praise of the Hospital Benefit Association's Surgical Plan which contains many broad, generous benefits not offered in most other plans. They especially seem to like the fact that the Association pays for emergency treatment of accidents whether it is in the doctor's office, at the scene of the accident or in the patient-member's home. Of course, such treatments must be made within 24 hours of the accident. If X-rays for fractures, dislocations or for locating foreign bodies are required, as the result of an accident, the Association will pay for one X-ray, regardless of whether the X-ray is made at the doctor's office or at an X-ray laboratory.

Emergency accident treatment is included in the HBA Surgical Plan because the Association realizes the importance of this provision to both doctor and patient. Everyday accidents — the kind that are most likely to happen to anyone at anytime — often do not require hospitalization but can be treated at the doctor's office. By including this provision, the Association enables many people to go to the doctor for minor injuries which otherwise might be neglected until they become serious.

Generous Benefits

Surgical fees are paid for members by the Association for fractures, dislocations. wound repairs and even examination of a suspected injury as the result of an accident. The HBA Surgical Plan also includes benefits to cover such non-surgical accident treatment as removal of a foreign body from a patient's eye, insect stings, accidental poisoning, etc.

X-rays in the Doctor's Office

Fees paid for X-rays of accidental injuries, whether they are made in the doctor's office or at the laboratory, range from $6.00 to $45.00, depending on the type of X-ray. This schedule of fees is based on the schedule which is used by the Arizona Industrial Commission and which was approved by a committee representing the Arizona Medical Society.

Simple Form Saves Time

The claim form which the Association sends the doctor is very popular because of its simplicity. It eliminates the red tape often encountered in establishing claim data. The doctor merely fills out the short form, listing his diagnosis, treatment, charges and answers a few simple questions.

Doctors Commend HBA TV Newsreel

The Association is pleased to report it has received many favorable comments from doctors on its TV show, the HBA Newsreel. This half-hour program, featuring noteworthy current news events, is telecast every Monday at 8:30 P.M. on KTYL-TV, Channel 12.



"Let him yelp — don't spoil him because he's an only child."

diagnosis, but is rarely of use in desensitizing. Treatment must usually consist of dull local applications.

It seemed a good idea to write a comment on the newest DENTAL PROTECTIVE PROCEDURE. The Sat. Eve. Post had a wide-eyed article on the ANTI-ENZYME approach, described by its Chicago originators as fabulous and amazing, as well as a continuous barrier to decay. . . . This merry-go-round is the same one we rode on 3 years ago ('ammoniated') and about 2 years ago ('chlorophyll'), so we were all ready to look with a jaundiced eye, when crash boom! whee! out came full page newspaper ADVERTISEMENTS referring to the article in THREE magazines. They all had just happened to be about anti-enzymes. . . . The ad also just happened to be about Antizyme, a new dentifrice by Listerine. The Lamberts ride again! . . . So we grabbed the brass ring and bought a tube, not for protection or science, but just to see how it tastes. . . . Mint.

The English feel that isoniazid offers a special help in TUBERCULOSIS OF THE KIDNEYS (Dick, in The Lancet). It is given credit for producing 'patholytic' miracles which most Americans have not yet admitted. . . . Caseation is said to be absorbed, lesions vascularized, and fibrosis prevented in the surrounding area. This is a reversal of the usual TB process. . . . They stress that "none of the antituberculosis drugs should be used ALONE."

Another new anti-TB drug is still too young to be well studied. The material is called HES, for hydroxethyl sulfone. It was synthesized by the National Institutes of Health Laboratories, and studies by Payne and colleagues of Howard University in Washington, D. C. . . . The place of HES in therapy, or its relationship to other drugs, or its relative toxicity is not certain enough for us to trifle with. . . . Hold off. Wait and see.

. .STREPTOMYCIN sometimes produces a violent allergic reaction. In theory the drug should have been given on a previous occasion, but the patient denies it, or can't remember it, or doesn't know about it. . . . The latter case may have occurred when a double-drug combination was given as a shotgun therapy for some sore of infection. . . . There is a lot of evidence against the use of two drugs, especially when it is needless or careless, and especially when they are called by some cryptic trade name. Use 'em simple, we say, unless absolutely indicated, and that includes SM.

Drs. Clarke, Zahn, and Holmes of Seattle believe they have proof that A GOOD SCARE may help TUBERCULOSIS to heal. . . . They have clinical evidence that fright has seemed to turn the tide in many cases. They intend to use the method for a trial, and to further correlate the relations of fear and TB and the adrenal gland. . . . Chemical tests of adrenal activity have been somewhat correlated with mental states, but the main work remains to be done. . . . We expect to see Dr. Zahn in Utah soon, and will find out the progress.

Dr. Frank Meleney, the antibiotic man from New York, sometimes plays a guest-spot in this journal. . . . He has recently clarified the BOIL AND CARBUNCLE situation, especially for the non-surgeon who hesitates at direct, local therapy. . . . Penicillin or bacitracin may be injected into the CENTER of furuncles and carbuncles. It also can be placed in the periphery of a wide zone of induration which may be present around the latter, in combination with a local anaesthetic, just as has been done by pioneers in the past couple of years.

RESINS have been described which absorb various electrolytes from the intestinal tract. They now sell one ('Resion', by The National Drug Co.) which is supposed to DETOXIFY. . . . It is composed of polyamine methylene resin and two aluminum silicates. It is said to be effective in diarrhea, and in gastroenteritis, and in the nausea and vomiting of pregnancy. They use the term 'polyphasic absorbent'. . . . It sounds reasonable in this day and age, but data are not sufficient for comparison with the simple kaolin-pectates, etc., nor whether the stuff may pick up too many chemical items.

A recent story in this column about a Los Angeles and a San Francisco chest surgeon has smoked out another 'gay' story. It concerns Dr. B., a Los Angeles surgeon who also is well-known in Arizona. . . Dr. B's family has two cats. The 'outside cat' was hit by a car, taken to a veterinarian's and recovered except for a diaphragmatic hernia. . . . The vet was so delighted at this finding that he kept the cat for days and weeks. Mrs. B. called repeatedly, and the cat was always about to have another x-ray. She was told that the cat needed an operation, to which she replied that her husband did that sort of thing. One remark led to another, and the impasse was broken only when Mrs. B. arranged to get the cat home by allowing the vet to 'scrub' for Dr. B. during the hernia repair!

Electrocardiographer, certified, desires to interpret EKG's by mail. Replies by return mail day of receipt. $1.25 per interpretation.

Write %
ARIZONA MEDICINE JOURNAL
424 Heard Bldg., 112 N. Central
Phoenix, Arizona

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY COMPANY

DWIGHT McCLURE GEORGE B. LITTLEFIELD W. J. WINGAR
Telephone ALpine 3-1185 407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative

617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.

228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.

333 N. 7th Ave. — Phoenix, Arizona

ALpine 3-5175

Woman's AUXILIARY

THE PLEDGE OF LOYALTY TO THE WOMAN'S AUXILIARY

I PLEDGE MY LOYALTY AND DEVOTION TO THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION. I WILL SUPPORT ITS ACTIVITIES, PROTECT ITS REPUTATION AND EVER SUSTAIN ITS HIGH IDEALS.

This pledge was adopted at the annual convention in Chicago in June 1943.

What is loyalty? There is probably no word in the English language more widely used. But do we appreciate its full meaning? Being true to one's inmost self and acting accordingly is loyalty. Webster says it is "Fidelity to a superior or to duty, allegiance, homage." The loyalty and allegiance of the Woman's Auxiliary is to the medical profession.

From the time of its organization in 1922, the membership of the Auxiliary has steadily increased, and the importance and scope of its activities in the advancement of health have become broader and more varied. It is the function of the Woman's Auxiliary, under the direction of the American Medical Association, to aid in the promulgation of those principles which will improve public health. Also, it is important that it be realized that one of the chief objects of the Woman's Auxiliary, when it was organized, was to promote friendliness among physicians' families.

Today there is need, as never before, to adhere to and to promote the objectives for which we stand as an Auxiliary to the American Medical Association. We should assume our share of responsibility for safeguarding the ideals of American Medicine at all times and under all conditions.

As an Auxiliary we should look to our advisers for direction and remember that, as an organization, we have a oneness of purpose which is definite and impersonal, yet at the same time unobtrusive and regulated. Let us hold to our ideals as we pledge our unified effort, in a spirit of loyalty and devotion, to the members of the great humanitarian profession which we have the privileges of association.

Mrs. David W. Thomas, Member of the Publications Committee, and Past President, Woman's Auxiliary. (Taken from the August issue of the **Bulletin** of the Woman's Auxiliary to the American Medical Association.)

LEGISLATION REPORT

The Woman's Auxiliary to the American Medical Association has been called upon to assist with three major pieces of legislation during the coming year. These are: 1. The Bricker Resolution; 2. Bills allowing the deduction from income of expenses for post-graduate courses and advanced professional training, similar to H.R. 4393 by Davis of Georgia; 3. Reed-Keogh type bills, allowing tax deforment for retirement funds for the self-employed.

Senator Bricker desires a constitutional amendment which would limit the treaty powers of our government as they are at present set up, and to "protect the United States Constitution and the American system of government established in the Constitution, including the Bill of Right, against subversion by the Treaty Power; that will prevent treaties from becoming internal law within the United States, except to the extent made so by congress, just as in the case of any other federal statute.

The Woman's Auxiliary has been informed that the International Labor Organization has approved certain treaties or covenants which are in opposition to the accepted custom in the United States. These covenants are to be presented to the Congress of the United States for ratification. These covenants are the motive behind Senator Bricker's proposed amendment.

At the 30th Annual Meeting of the Woman's Auxiliary to the American Medical Association in June of this year 1953, it was resolved by the Woman's Auxiliary that they go on record as disapproving such treaties and covenants and that they favor the proposed amendments to the Constitution of the United States relating to the ratification of treaties and covenants.

There are erudite proes and cons regarding this resolution but the present amended bill

(Please turn to Page 382)

CHIROPODY, A HAND MAIDEN OF MEDICINE. Did you know this is what the Judicial Council of the American Medical Association says about chiropody? In 1939 this Council ruled that the practice of chiropody is not a cult practice as some have believed but "is rather a practice ancillary — a hand maiden — to medical practice in a limited field considered not important enough for a doctor of medicine to attend and therefore too often neglected. General opinion seems to be that chiropody fairly well satisfies a gam in medical care that the profession has failed to fill." Several large hospitals, as well as the Mayo Clinic, have chiropodists on their staffs, and the Mayo Clinic thinks so well of its chiropodist (Tarara) that a dinner was held in his honor on the occasion of his appointment as a voting member of the Clinic staff.

Read more about chiropody and chiropodists in the Delaware State Med. Journ., June, 1953, article by Friedman on "Dermatology and the Chiropodist," and the article by Sindoni on "The Role of the Chiropodist in Diabetes."

W.W.W.

In very special cases

A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N.Y. 54

Auralgan
In Acute Otitis Media
Rhinalgan
Safe Nasal Decongestant
O-tos-mo-san
In Fungus and Bacterial Ears

PAUL DESILETS
Representative
515 Ocean Ave. — Seal Beach, Calif.
DOHO CHEMICAL CORP.
100 Varick Street, New York 13, N. Y.
Telephone Worth 2-7707

FOR RENT

Two Doctors, can have ideal location on the East side near McDowell Road.
At Very reasonable figures. Good Parking.

See or Call
Robert Rae, Real Estate Broker
1414 E. McDowell Rd.
Telephone AL 4-1636 — Phoenix

TRUSSES — SURGICAL SUPPORTS

GROVE'S
Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

Monty Lebert's Nursery
And
Flower Shop

Artistic Flower Arrangements for Every Occasion

• • •

Assorted Potted Plants
Dish Gardens
Beautiful Ceramics

We Specialize In Planter Box Materials

531 W. Thomas Road Phone AM 6-2401
Phoenix, Arizona

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier
307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

has been approved by the American Bar Association and the American Medical Association and because of this bill will have a rough road ahead it is urged that we exert continuous pressure so that the bill will be considered and favorably reported by the Senate. The same consideration should be given H. J. Res. 280, by Reed of Illinois which is identical with the Bricker Resolution.

On the subject of taxation there are two points of particular interest to the Medical profession. The first is in regard to the deduction of postgraduate education expenses. The second subject (Reed-Koegh) which is of particular importance is No. 36 on the agenda. This is the question of allowing tax deferral for the establishment of retirement funds for the self-employed. This legislation would allow the physician to set aside, on a tax deferred basis, up to ten per cent of his income, but not to exceed $7,500.00 a year, in a trust fund, from which he may withdraw the money on retirement, paying taxes on it at that time. Mrs. Edgar E. Quale our National Legislation Chairman tells us that "all the old bills on socialized medicine are back in the hopper, and we must put the fight against socialized medicine on our agenda as permanent unfinished business." Our obligation as dutiful American citizens will not permit us to relax our vigilance or let down our guard in our struggle to help establish and support legislation that will benefit the greatest number of our fellow citizens. Let us valiantly and consistently assist in maintaining the freedom which we now enjoy.

Mrs. Charles L. von Pohle, Chandler, Arizona, State Legislation Chairman, Delegate to the Annual Convention of the Women's Auxiliary to the American Medical Association.

RADIOLOGIST 29; desires association with established Radiologist; hospitals; group or clinic. Southwest.

Write:

Arizona Medicine Journal
424 Heard Bldg., 112 N. Central Ave.
Phoenix, Arizona

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

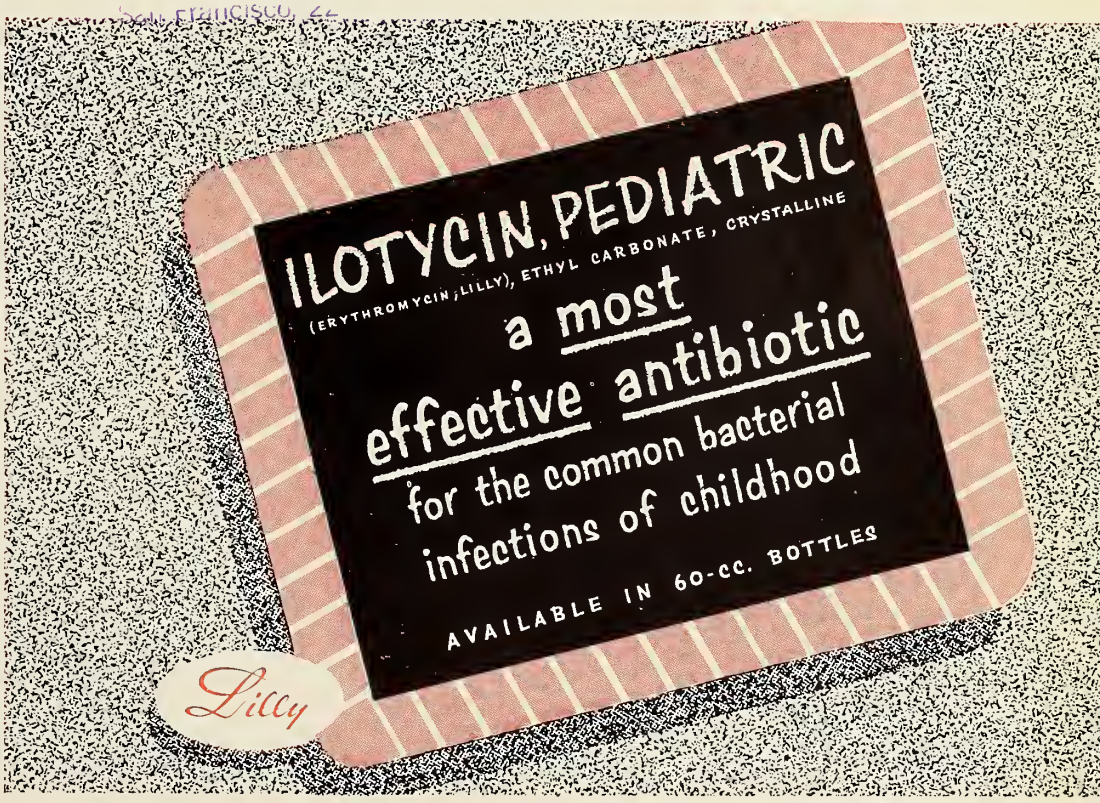
R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist



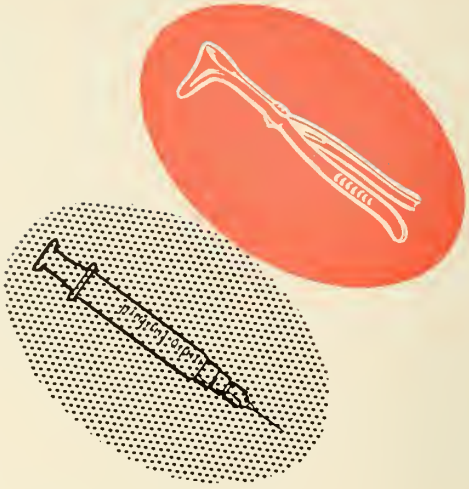
Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

U. C. MEDICAL LIBRARY
NOV 10 1953
SAN FRANCISCO 22



Vol. 10, No. 11 • NOVEMBER, 1953 • TABLE OF CONTENTS — PAGE V



a specific use in almost every practice



ADRENALIN is available as ADRENALIN CHLORIDE SOLUTION 1:1000, ADRENALIN CHLORIDE SOLUTION 1:100, ADRENALIN IN OIL 1:500, ADRENALIN OINTMENT 1:1000, ADRENALIN SUPPOSITORIES 1:1000, ADRENALIN HYPODERMIC TABLETS 3/200 grain, and in a variety of other forms to meet medical and surgical requirements.

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 11 NOVEMBER, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

TRICHOMONAS VAGINITIS—A PERENNIAL PROBLEM 383
Edmund W. Overstreet, M.D., San Francisco, California
THE MANAGEMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE 387
Travis Winsor, M. D., Los Angeles, California
THE NEPHROTIC SYNDROME 393
Derrill B. Manley, M.D., Phoenix, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 397
Howard C. Lawrence, M. D., Phoenix, Arizona

PRESIDENT'S PAGE

THE STATE OF HEALTH IN ARIZONA 406
Edward M. Hayden, M.D., President, Arizona Medical Association, Lnc.

EDITORIAL

TOO MANY MEDICAL JOURNALS? 407

THE PROFESSIONAL BOARD

TUBERCULOSIS PROBLEMS IN ARIZONA 409
O. J. Farness, M.D., Tucson, Arizona

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 410
Guillermo Osler, M.D.
BOOK REVIEWS 413
BONE MARROW ASPIRATION 413
ARE YOU INSURED? 413
CLINICAL SESSION PLANNED FOR GENERAL PRACTITIONER 408
MEDICAL COSTS 414
Arizona Pharmaceutical Association

WOMAN'S AUXILIARY

FALL BOARD MEETING 416
Mrs. H. Howard Holmes, Eloy, Arizona
THE STUDENT NURSE LOAN FUND NEWS 417
Mrs. Donald A. Polson, Phoenix, Arizona

DIRECTORY

LABORATORIES XXI
SANATORIUM DIRECTORY XXII
DRUGGISTS DIRECTORY XXVI
PHYSICIANS DIRECTORY XXIX

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 — 401 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Campbell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe I. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Milton C. F. Semoff, M. D., Tucson; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: William B. McGrath, M. D., Phoenix, (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; Zenas B. Noon, M. D., Nogales; John R. Schwartzmann, M. D., Tucson.

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION – 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenberger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Mental Health ..... Mrs. Delbert Secrist
35 Calle Clara Vista, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

GRAHAM COUNTY

President ..... Mrs. Noel Grey Smith
Safford
Vice-Pres. ..... Mrs. Robert Keller
Safford
Sec.-Treas. ..... Mrs. Donald E. Nelson
Safford

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour I. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mable St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Kloby
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association

VOL. 10, NO. 11 NOVEMBER, 1953

Original ARTICLES

TRICHOMONAS VAGINITIS — A PERENNIAL PROBLEM

Edmund W. Overstreet, M.D.
Department of Obstetrics and Gynecology
University of California School of Medicine
San Francisco, California

One of the most common patients seen in the practice of Medicine is the woman whose complaint is of profuse vaginal discharge, usually accompanied by fairly severe itching and burning of the vagina and vulva. Many more such patients come to general practitioners and family physicians than are ever seen by gynecologists. Indeed, the problem is such a common one that it is most doubtful whether gynecologists alone can handle it. Moreover, such leukorrhea and pruritus only rarely entails complex or serious implications, so the management of it, for the most part, lies much more in the province of the general physician than it does in that of the gynecologist.

Such symptomatology is frequently caused by infestation with trichomonas vaginalis. This little protozoan has posed worrisome problems for most of us at one time or another, because even today our information about its habits and propensities is still so faulty. Moreover, even today the trichomonad is not searched for as regularly and effectively as one would wish. Obviously, whenever any woman complains of vaginal itching and burning the possibility of trichomonas infestation must be kept in mind during the course of her study. Suspicion will be increased if observation of the vaginal discharge shows it to be yellowish in color, frothy and bubbly in nature, and to have a rather typical foul odor. Suspicion will increase even more if inspection of the vaginal and cervical mucous membranes show punctate hemorrhagic areas, small petechiae scattered here and there on the vaginal walls. Unfortunately, it is at this point that many physicians fall down in confirming the diagnosis of trichomonas vaginitis. For inspection of the vaginal walls, of course, a speculum is used. Most physicians, without thinking further about it, lubricate the speculum with one of the usual vaginal lubricating jellies before inserting it into the vagina. All of these commercial jellies are on the acid side. And the introduction of even a small amount of acid jelly into the vagina before examining a specimen of the vaginal discharge for trichomonads can completely immobilize the organisms so that they are missed when the smear is examined. Actually, it is not difficult to insert a perfectly dry speculum for vaginal inspection, especially when a considerable vaginal discharge is present. This should invariably be done when a search for trichomonads is in progress.

Many physicians, too, have the impression that the identification of trichomonads by laboratory means is a rather tricky matter, requiring special supplies. This is not by any means the case. An ordinary glass slide, a cover slip, and a dropper bottle of simple saline solution, or better yet Ringer's solution, are the only requirements. Much the best results are obtained if the solution is near body temperature. It is a simple enough practice, at the start of any office session, to place the dropper bottle of Ringer's solution in the office sterilizer for a few minutes to warm it. With the cervix and vaginal walls visualized through

Presented before the Annual Meeting of the Arizona Medical Association, Tucson, Arizona, April 27, 1953.

a speculum, a sample of vaginal discharge is taken up on an ordinary cotton applicator. It is important to apply the applicator not only to the vaginal discharge present in the posterior vaginal fornix, but also to the external cervical os. The trichomonads are more likely to be actively motile in the alkaline cervical secretions than in the acid vaginal secretions. The cotton applicator is then simply shaken gently in a few drops of Ringer's solution directly on the slide in order to transfer a good portion of the discharge to the fluid. A cover slip is then applied. It is most important, of course, to examine this wet preparation under the microscope within a few minutes, before any great cooling has immobilized the active trichomonads. The identification of the protozoa, moving jerkily about by flagella and undulating membranes, is ordinarily easy if any appreciable number of active ones is present.

Quite often, however, no definite trichomonads are found in such a preparation even though a trichomonas infestation actually does exist in the patient. For this reason it is extremely valuable, as a matter of routine, to obtain vaginal cytology smears of the Papanicoloau-Traut type in all such patients. Not only is routine cancer screening accomplished, but in obscure cases of trichomonas vaginitis the organisms can be identified in such a smear when the wet preparation fails to reveal them.

Careful routine use of these two diagnostic methods is sufficient in almost 100% of cases. For practical purposes they are sufficient. Only in rare cases indeed will it be necessary to undertake the specialized procedure of culturing the organism on special media in order to demonstrate its presence.

The patient informed of a trichomonas infestation is usually horrified at the thought of the existence of parasites in the vagina. Reassurance is usually successful, however, if it is pointed out to the patient that the infestation is not serious, that it is much like having severe dandruff or athlete's foot, and that it is almost as prevalent. When it comes to informing the patient of how she acquired the infestation — which most women immediately want to know — the answer is more difficult. The best one which can be given today, although it is by no means a complete and satisfactory one, is that the infestation probably occurs by body to body contact. It is known, for example, that the highest incidence of trichomonas infestations is found in girls' orphanages and old ladies' homes. A very high percentage of daughters of mothers afflicted with trichomonas vaginitis also have the infestation. Just how much part is played by the borrowing back and forth of women's clothing or the common use of bedding is not definitely known. Both of these are usual habits among girls and women, and in the face of a trichomonas vaginitis it is probably best to warn the patient to eliminate such practices during treatment. It is suspected, however, that viable trichomonads cannot be carried very long in a dry state on ordinary clothing. Nevertheless, it is recommended that during the treatment of a trichomonas infestation the pationt should be instructed to use only thoroughly washed unclothing and well-cleaned outer clothing for fear of possible re-infestation from previously used clothes.

It is well established today that vaginal infestation cannot be transmitted from the patient's own rectal area. Almost all humans carry in the intestinal tract a form of trichomonas known as trichomonas hominis. Trussell's work, however, has shown rather conclusively that this organism is a different species which cannot survive in the vagina. Consequently, all of the previous emphasis on rectal hygiene at the time of bowel movements is no longer necessary.

Of increasing importance, however, is the role played by the male sex partner in female re-infestation. It is possible for the male to carry trichomonas organisms in the urethra, in the prostate and seminal vesicles, and in the bladder, without any symptoms whatever. Consequently, in any case of trichomonas vaginitis which seems to remain relatively intractable to treatment, an examination of the husband's centrifuged urine sediment and prostatic massage fluid must be included, to rule out a possible source of continual re-infestation. Attention to this fact will result in a very much higher cure rate in the therapeutically resistant cases of trichomonas vaginitis.

On the other hand, certain factors in the female seem to mitigate against cure; they should be kept constantly in mind in planning a therapeutic regimen. For reasons which are not understood at the present time, women who have had hysterectomy, either total or sub-total, are much more prone to tenacious trichomonas infestations. The same is true following extensive

cervical cauterization or conization. And the menopausal or post-menopausal woman is unusually refractory to treatment. In any of these situations, then, it will be necessary to employ a much more vigorous and meticulous treatment regimen.

Unsuccessful treatment is also attendant upon failure to search carefully for foci of re-infestation in the patient herself. The three prime area are the cerivcal canal (and possibly the uterus), Skene's ducts, and the bladder. Even though all sorts of powerful trichomonacides are employed in the vagina, if the organisms are well established deep in the glands of the cervical canal, they simply are not reached by the medications, and upon completion of the course of treatment re-infestation of the vagina easily occurs. This is one of the factors which accounts for the tendency to re-activation of trichomonas vaginitis by each menstrual period.

Almost all cases of trichomonas vaginitis are accompanied by a cervicitis and endocervicitis. The purulent discharge from the external cervical os is the tip-off. So it is essential that some sort of treatment be applied to the cervical canal. In the presence of a considerable erosion and eversion of the cervix with obvious long-standing chronic cervicitis, use of the actual heat cautery may be necessary to obtain satisfactory healing and to eradicate this focus of infection for the trichomads. At the very least, some sort of chemical cauterization of the cervical canal should be carried out. It has been our experience that Negatan [R] Solution is a very satisfactory agent for this purpose. 5% or 10% silver nitrate solution may also be used.

The same situation obtains for the Skene's ducts. At any initial examination for leukorrhea and pruritus it is most important to carry out a gentle stripping maneuver under the urethra in the hope of expressing drops of pus from one or more Skene's ducts. Naturally, where trichomonas infestation is suspected these drops of pus should be smeared out on a wet prepartion and examined immediately for the presence of trichomonads. This search is especially important in the intractable cases. Ordinarily the stripping procedures and the routine treatment for trichomonas vaginitis will eliminate Skene's duct infestations as well. But not infrequently it may be necessary to resort to complete obliteration of the Skene's ducts before this source of re-infestation can be eliminated. This, of course, must be accomplished by coagulation as a hospital procedure.

The female bladder should not be slighted in any investigational and treatment program. In intractable cases the centrifuged urinary sediment should be examined in wet smear preparation for the presence of active trichomonads. Fortunately, their eradication here is not nearly as difficult as in the male bladder. Ordinarily a few installations of one or two ounces of 1:1000 silver nitrate solution into the bladder will serve to eliminate them.

What can be said of the efficacy of modern treatment methods for the vaginitis itself? All sorts of claims are heard today about the efficiency of particular products in the treatment of trichomonas vaginitis. The furor at the present time revolves about a product called Vagisol [R] which is found to be very effective in the hands of Shaw and his co-workers in Los Angeles. Actually, a persual of Shaw's paper will demonstrate that their treatment regimen was an extremely meticulous one. This is the important point! There are plenty of good protozoacides on the market. What counts is not which one is used, but how carefully it is employed by physicians and patients. So it is essential to emphasize the important basic principles in their use.

The primary aim is to be certain that some protozoacidal material is constantly present in the vagina and on the vulva twenty-four hours a day. This obviously is not the case, for example, if a patient uses the vaginal application at night, then takes a douche upon arising in the morning, and applies no further local medication during the daytime. So instructions to patients must make this basic principle clear.

Most important of all is the fact that any protozoacidal treatment must continue steadily through at least one menstrual period — preferably two or three periods — being employed daily during the menstrual flow. This is indispensable if any success at all is to be had in the treatment of this affliction. Almost all cases of trichomonas vaginitis will come rather easily under control in the interval between two menstrual periods. But if treatment is discontinued throughout the following mentrual period, at its end the infestation will usually be back at about the same level as when the patient was first seen. Unfortunately this fact is not widely enough known. Over and over again today

patients are seen with what is said to be an intractable, treatment-resistant trichomonas infestation, but history-taking often reveals that such patients have never had treatment prescribed during any menstrual period. When this is supplied the disease clears rather quickly.

The third principle of importance has to do with duration of treatment. There is no known method of treatment today which will obtain a high percentage of cures in a short time. A minimum of one month is required, and two months is probably preferable as a routine. In intractable cases it may be necessary to continue treatment for as long as six to eight months, but during such a period of time the amount and timing of medication can gradually be tapered off.

Whether or not treatment of trichomonas vaginitis is commenced with office applications of a trichomonacide is probably rather immaterial. A single good cleasing of the vagina and careful application of a powder material, for example, is perhaps worthwhile. But thereafter there is little to be gained by applying the treatment in the office, and the patient can apply the medications just as effectively at home, provided one can be certain she will stick to it. A satisfactory practice is to employ one trichomonacide in the form of a jelly preparation combined with another in the form of a tablet preparation, to be used as a starting treatment over a period of at least two weeks. Preferably this should include a menstrual period. Medication should be applied both night and morning during this time. It is essential also to emphasize to the patient the importance of applying the jelly preparation not only within the vagina by means of an applicator but also over the vulva and around the urethral meatus and Skene's duct area. After two weeks the progress of the patient should be checked, and if it seems good, she may continue simply with the tablet trichomonacide morning and night. For the second month one usually need only prescribe the tablet trichomonacide at night. This regimen will cure well over 90% of cases.

The attitude toward douches in the treatment of trichomonas vaginitis has altered considerably in recent years. Their effectiveness is not nearly as great as that of the jelly preparations. In all probability douches are of actual value only as occasional cleasing agents for the vagina. In addition, at the start of treatment they may be helpful in terms of their soothing effect, and employing them as hot as possible will aid in the healing of ulcerated, irritated areas. In general, however, after the first week of treatment douches need not be used more than two or three times a week. It is important also to remind the patient that whenever she employs a douche for cleansing purposes, immediately upon its completion more trichomonacidal medication must be applied to the vagina and vulva. Naturally, only acid douches should be used.

It is worthwhile to digress a moment to reiterate that under no circumstances, at any time, should a woman use anything but an acid douche for cleansing purposes. In this country entirely too frequent use is still made of water, salt, or, worst of all, soda douches. Such douches eventually produce some degree of vaginal irritation by upsetting the normal vaginal acidity. Especially after the menopause, the use of soda douches can result in the production of a florid vaginitis. In general the most satisfactory acid douche for cleasing purposes consists simply of two quarts of warm water containing two to four ounces of ordinary kitchen vinegar. It is effective, it is acceptable, and it is inexpensive.

One more comment should be made about intractable trichomonas cases. Aside from the special investigative and treatment procedures already outlined, it is essential to give attention to the fact that certain strains of trichomonads may become resistant to one or another of the trichomonacides. Consequently, in the management of intractable cases over long periods of time, it is important to change occasionally from one trichomonacide to another in order to be as certain as possible of eradicating the organisms.

What can be said about adjunct methods of treatment? Obviously, in any trichomonas infestation of more than moderate degree, other organisms have gained access to the irritated tissues as secondary invaders. Consequently, it is often worthwhile to use local vaginal medication designed to suppress them. The local antibiotic preparations are thoroughly satisfactory for this purpose. They appear to be most effective in jelly form, as, for example, the triple sulfa creams, the bacitracin ointments, and the like. Vigorous warning should be made against the local use of penicillin in the vagina. It results in a very high incidence of penicillin sensitization. Caution should also be expressed about

the use of aureomycin and terramycin either by mouth or locally. With them the patient may obtain excellent eradication of the trichomonads and the secondary invaders, only to develop a bad infestation of monilia.

No matter howe careful and able the treatment, one will occasionally encounter a case of trichomonas vaginitis which seems to persist in spite of the best treatment methods. But with meticulous attention to the principles and methods outlined above, such cases should be few and far between.

THE MANAGEMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE

Travis Winsor, M.D., F. A. C. P. *
Los Angeles, California

The proper management of diseases of the peripheral arteries depends upon an accurate evaluation of the state of the peripheral circulation which may be examined advantageously by clinical as well as laboratory means. Clinical observations include a search for the presence or absence of intermittent claudication, pulsations of the peripheral arteries, elevational pallor or dependent rubor, and changes in the tissues of the limbs. The laboratory examination is carried out with the plethysmograph which supplies objective data about the peripheral circulation and gives information which cannot be obtained in any other way(1). Certain measurements usually are made: Determinations of the degree of peripheral resistance aid in the detection of arterial disease. Measurements of the systolic blood pressures and pulsations at various locations on the extremities aid in locating arterial obstructions(2). Evaluation of the various factors controlling vasomotor tone assists in the differentiation of functional from organic diseases. Determinations of blood flow through large arteries as well as through collateral vessels demonstate the relative value of various vasodilating therapeutic agents or procedures(3). Of these measurements the determination of the degree of peripheral resistance especially is important as a high peripheral resistance is the most common cause of a decreased blood flow to a limb.

There are several factors which may cause an abnormally high peripheral resistance. These can be divided into two main groups:

(1) neurogenic factor producing vasoconstriction through nervous mechanisms and (2) extraneurogenic factors causing vasoconstriction by disease, mechanical, chemical or other means.

The neurogenic control of peripheral flow can be demonstrated by measuring the toe circulation before and after a posterior tibial nerve block. This procedure removes sympathetic vasoconstrictor impulses which limit blood flow to the toe (fig 1). The block is carried out by injecting 5 cc of 2% Novocaine through a ½ inch 26 guage needle into the region of the posterior tibial nerve at a point on a line one-third the distance from the posterior aspect of the internal malleolus to the tip of the heel.

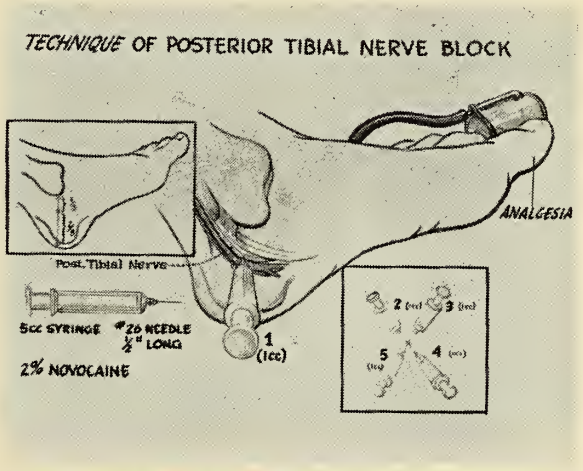


Fig. 1. The posterior tibial nerve block removes sympathetic vasoconstrictive impulses to the toe thereby allowing an estimation of the amount of neurogenic factor controlling peripheral resistance.

The needle is inserted the full length of its shaft and 1 cc is injected. The needle is withdrawn slightly and redirected in four different directions and 1 cc is injected in each location. A satisfactory block is evidenced by analgesia of the ball of the second toe within 10 minutes of the injection. The magnitude of the neurogenic factor may be estimated by measurements of blood flow through the toe by means of the plethysmograph before and after the block. If plethysmographic measurements are not possible skin temperature measurements made with an

* From the Cardiovascular Foundation, Hospital of the Good Samaritan, Los Angeles, California and the University of Southern California, Medical School, Department of Medicine.
Presented in part at the Arizona Medical Association Meeting, April, 1953, Tucson, Arizona.
The studies summarized here were carried out by grants from the Los Angeles Heart Association.

accurate instrument° may be employed.

The extraneurogenic factors limiting the peripheral circulation are organic disease involving the blood vessel wall, increased inherent tone of arterics, circulating endogenous or exogenous chemical vasoconstrictors such as nor-epinephrine, pituitrin, angiotonin, ergot and abnormalties of the blood. In order to evaluate the extraneurogenic factor tests are carried out after sympatholytic procedures such as a posterior tibial nerve block. The technique is to measure the peripheral resistance before and after the administration of pharmacologic agents with known actions. Thus an adrenalytic agent, such as M. Imidazoline°° is used to demonstrate adrenergic influences, and alcohol is employed to demonstrate the degree of inherent tone. When neither of these agents produces a decrease in peripheral resistance and the resistance is abnormally high, organic disease or other causes are responsible.

The results of these clinical and laboratory studies form a basis for rational therapy. Although every patient with peripheral vascular disease need not be studied in the manner outlined, such studies are necessary in difficult or unusual cases and in formulating general rules for therapy which are based on scientific measurements rather than on clinical impressions.

The general medical management of ambulatory patients with peripheral arterial occlusive disease of the lower extremities usually is as follows:

1. Walking at any one period is limited to one-half the distance which causes pain, and the stride is shortened 50 percent to slow the walking rate. This is advised on the basis of experiments which show that exercise of a foot with arterial disease decreases blood flow through the toes probably by increasing flow through arteriovenous shunts proximal to the diseased vessels (Fig. 2).

2. The head of the bed is elevated 4 to 6 inches and advice is given against the foot-up position. If Buerger's exercises are prescribed, the foot-up phase is eliminated. The foot-down position allows gravitational forces to draw blood into the foot through the arterial channels. Blood is returned to the heart through venous channels against gravity with the aid of venous valves, muscle movement and respiration. The latter exerts a sucking action on the veins of the thorax which favors venuos return.

3. A high protein, low fat, low calorie diet

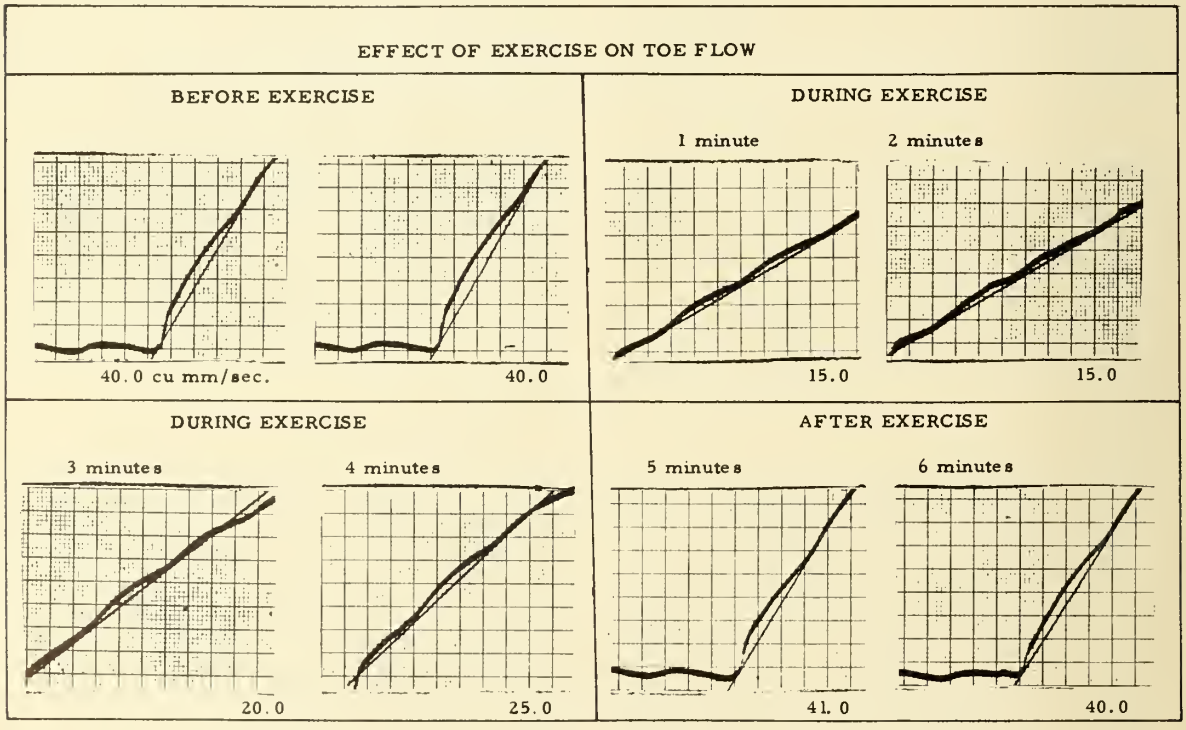


Fig. 2. Decreased blood flow to toes during exercise due probably to increased flow through healthy vessels.

° Thermister thermometer
°°Regitine

is advised. A high protein meal has a high specific dynamic action and increases pulse rate, blood pressure, and peripheral blood flow (Fig. 3). The low fat diet is advised because of the questionable place fat plays in the formation of atheromata and arteriosclerosis. The low caloric diet is used to reduce muscle work by reducing body weight.

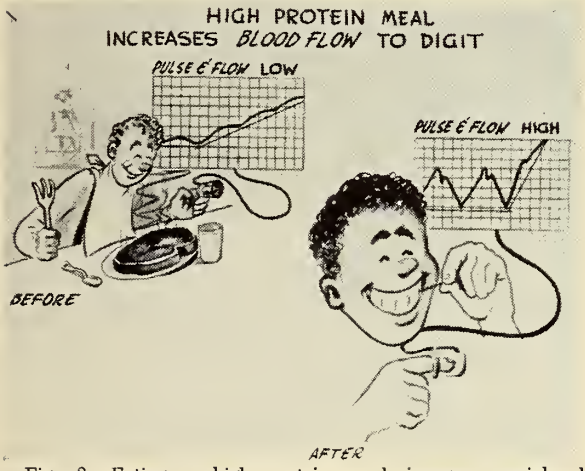


Fig. 3. Eating a high protein meal increases peripheral blood flow.

4. Moderate body heating in the form of warm clothing and an electric blanket often are beneficial. Excessive body heating is to be avoided as it decreases flow to the diseased parts by dilating healthy vessels more than diseased vessels. This results in the blood flowing to the dilated areas thus decreasing flow through the diseased vascular bed (Fig. 4).

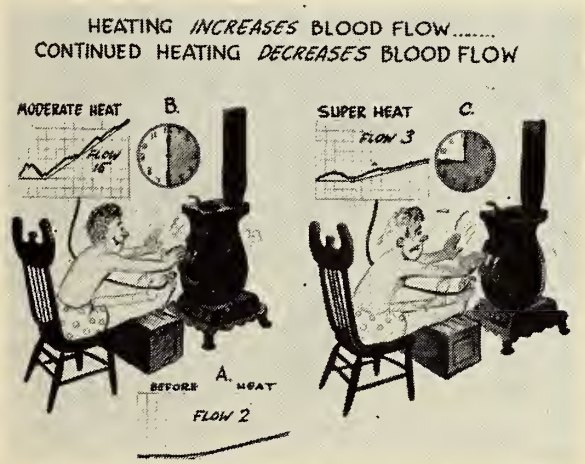


Fig. 4. Moderate indirect body heating increases blood flow to a diseased part while excessive heating decreases flow.

5. Alcohol in the form of whiskey, 45 to 60 cc. orally, two or three times a day is of value when contraindications are not present. Contraindications are: cirrhosis of the liver, gastritis, peptic ulcer, pancreatitis, alcoholism, idiosyncrasy, working conditions which do not permit the use of alcohol, or excessive family or patient prejudice. As alcohol is the most effective oral vasodilator available, its use is urged especially in patients with severe arterial insufficiency.

6. Drugs which produce vasodilation, to be most effective, should be used in combination with other vasodilating techniques such as indirect body heating. B. Imidazoline* 25 or 50 mg. three times a day, after meals is of value (Fig. 5). Larger doses are seldom reached because of nausea and nervousness. This drug is an adrenergic blocking agent with histamine like properties and inhibits certain sympathetic vasoconstrictive reflexes thereby increasing blood flow to the periphery. The increase in flow is less than half of that produced by a lumbar sympathectomy. Other agents such as muscle extracts, calcium, sodium tetrathionate, nicotinic acid, vitamin K, prostigmine, theophylline, hexamethonium, and pentamethonium have not been found of practical value.

B. IMIDAZOLINE HAS SYMPATHETIC BLOCKING PROPERTIES AS THE TRICKLE REFLEX IS INHIBITED AFTER TAKING THE DRUG.

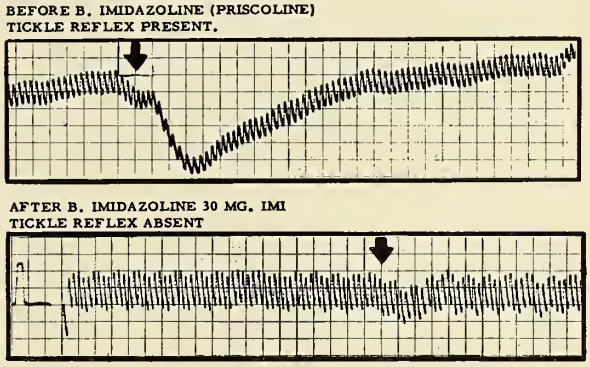


Fig. 5. Sympathetic blocking effect of B. imidazoline showing lack of response to sympathetic stimulus after drug.

7. Smoking may or may not be harmful. Nicotine is at least one of the vasconstrictive agents in tobacco as certain partially denicotinized cigarettes produce less vasoconstriction than brands containing more nicotine. The flow is not decreased to the sympathectomized limb in patients with arteriosclerosis obliterans indicating a neurogenic site of action of tobacco. Vasoconstriction occurs in normal individuals, in patients with arteriosclerosis obliterans and especially in patients with thromboangiitis obliterans. As the vasoconstriction is greater and more prolonged in the latter group it is important that these patients stop smoking. Patients with arteriosclerosis obliterans are requested to stop

* Priscoline

smoking but if they fail to do so insistence is not necessary as the emotional disturbances created are in themselves vasoconstrictive.

Certain complications or symptoms in patients with peripheral vascular disease require special therapy:

1. Intermittent claudication: The results of treatment are irregular and unpredictable. General medical management and lumbar sympathectomy improves walking ability in less than 30 percent of patients.

2. Neuritis: Ischemic neuritis is irregular in response, however a 3 weeks course of high potency Vitamin B complex with C and B 12 given by injection has produced improvement in a low percentage of patients. Diabetic neuritis, if treated early often responds dramatically to Vitamin B 12. Oral treatment, 50 micrograms three times a day is rarely sufficient. One hundred micrograms daily intramuscularly is more effective. If this fails, extract of pregnant cow's liver* may be tried, 5 cc. intramuscularly daily for 10 days. If improvement occurs this therapy is continued 1 or 2 times weekly. Whole vitamin B complex intramuscularly in addition to the above schemes is used. Diabetic neuritis of long standing usually does not respond.

3. Ulceration of the skin: This offers problems in healing, especially in diabetic patients and often requires hospitalization. The foot-down position is used as it results in increased blood flow to the toes however after a period of dependency edema may appear which decreases flow because of the increased tissue pressure. To counteract edema an oscillating bed is employed. The bed is adjusted to give minimum foot-up and maximum foot-down position allowing gravity to increase arterial flow during the foot-down period but prevents edema by decreasing venous congestion during the foot-up period (Fig. 6). The changes of pressure in the toe produced by the oscillations serve as a peripheral pump and favor exchange of tissue fluids thereby facilitating healing. For maximum effect, a vasodilating procedure either medical or surgical, should be used in addition to the oscillating bed. As the blood flow through the skin of the feet is controlled largely by the sympathetic nervous system, sypatholytic agents or procedures are important in the healing of cutaneous ulcers. B. imidazoline 30 mg. tid intramuscularly with oral alcohol is employed.

° Biohepulin

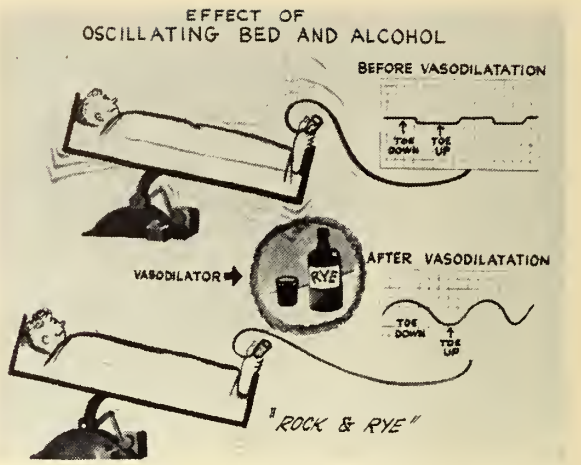


Fig. 6. Blood flow of an extremity may be increased by use of the oscillating bed, especially if a vasodilating agent is used concurrently.

A continuous lumbar sympathetic block using an indwelling vinyl catheter or a long acting local anesthetic* produces vasodilatation for 5 to 7 days. An alcohol nerve block may be carried out in patients who are not sensitive to pain as a painful neuritis lasting 2 to 3 months may follow. Alcohol block should be performed by one properly trained in this procedure who has suitable equipment. The technique is carried out by inserting a needle in the region of the second lumbar ganglion. A skin temperature recorder is attached to the skin of a toe and reading made. One cc. of Novocaine 2% is injected. If a sharp rise in temperature occurs in 5 to 10 minutes the needle is placed properly and 1 to 2 cc. of 95% ethyl alcohol is injected into the region of the second lumbar sympathetic ganglion. The third lumbar gangolion may be injected at a later time if the sympathetic blocking effect is incomplete. In addition to or instead of nerve blocks the intra-arterial injection of histamine phosphate 2.75 mg. in 300 cc. of saline, 10 mg. of B. imidazoline or 0.3 mg. of CCK 179** with or without antibiotics daily for 10 or more days is used.

5. Night cramps: Night cramps may be due to arterial insufficiency, prolonged standing, poor foot posture, flat arches, genu valgus, potassium imbalance (in diabetics), hyponatremia, hypochloremia, nerve root irritation, venous stasis, hypocalcemia, hyperphosphatemia (pregnancy), and other causes. Specific treatment such as aluminum hydroxide for the hyperphosphatemia of pregnancy, elastic bandages for venous insufficiency etc., is indicated. Syptomatic treatment

° Efocaine
°° Hydergerine

is satisfactory and consists of diphenhydramine hydrochloride* 50 mg. and quinidine sulfate grs. III (grams 0.2) with evening meals and upon going to bed.

6. Raynaud's Syndrome: This may be due either to functional or organic vascular disease or both. The vasospasm may be initiated by cold or neurogenic factors or other causes. The importance of cold may be revealed by noting the length of time required for the fingers to reach 30 degrees C. after immercing the hands in water 15 degrees C. for 15 minutes with the patient resting in a comfortable warm environment. Normally this value is reached in a very few minutes but with cold sensitivity it may not be reached for an hour. Cold sensitivity is treated by warm clothing, the use of a sportsman's type hand warmer**, 2% nitroglycerine ointment locally twice a day and B. imidazoline. CCK 179 is a useful adjunct in patients with excessive nervousness which is common in patients with this disease (Fig 7). If excessive perspiration of the hands is present, methantheline bromide*** is employed. Thoracic sympathectomy seldom is employed as a moderate return of sympathetic function occurs generally in 2 to

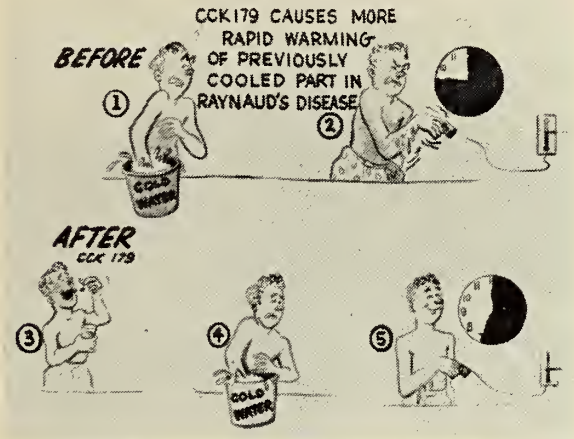


Fig. 7. The DH alkaloids of ergot (CCK 179) shorten the duration of the cold-induced vasoconstriction in Raynaud's disease. Before the drug the skin temperature reached 30 degrees in 45 minutes but after the drug it reached this level in 35 minutes.

3 years. This is in contrast to the lumbar sympathectomy which shows only slight return of function in a small percentage of patients after many years.

7. Thrombosis or embolis of large arteries: Heparin is given 100 mg. intravenously immedupon diagnosis to prevent extension of the clot. Preparations then are made for passing a catheter into the caudal canal to the level of the 2nd lumbar vertebrae and 25 cc. of 1% Novocaine injected to increase collateral circulation. The catheter is passed when the heparin effect is low or after the administration of protamine sulfate to temporarily inhibit the heparin action. After the catheter has been placed heparin is resumed, 75 mg. every six hours intravenously or according to the coagulation time (2 times normal 4 to 6 hours after injection). If the desired increase in circulation does not occur with this procedure as shown by plethysmographic measurements an embolectomy is performed providing the vascular accident has occured within the last few hours. When thrombosis is present

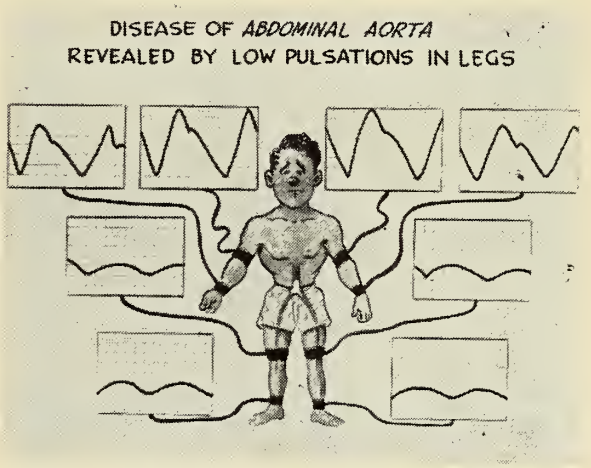


Fig. 8. Aortic obstruction located by recording pulsations of limbs at various sites.

attempted surgical removal of the clot usually is unsuccessful and continuous anti-coagulant therapy generally is employed.

8. Chronic occlusion of the abdominal aorta (Leriche Syndrome) (Fig. 8): This produces a syndrome characterized by decreased circulation to the legs with associated symptoms such as impotence, low back pain and development of a characteristic gait. The most conservative treatment is medical as described above for the ambulatory patient with organic arterial occlusive disease. If minimal degeneration of the tissues is present, such as atrophy of the skin of feet and toes, a bilateral lumbar sympathectomy is often of value. With rapid degeneration of the tissues one considers removal of the obstruction with restoration of the lumen of the vessels. Thromboendarterectomy may be carried out by surgeons experienced in this field. Isolated, short-segment obstruction of an iliac artery is suitable for this type of therapy. This operation takes many hours to perform and

* Benadryl
** Jon E
*** Banthine

thrombosis after surgery occurs not uncommonly. Another solution to the problem is an aortic graft, in which a suitable aortic segment properly sterilized and previously stored in special solutions or in a frozen state is employed. This procedure has been used for at least 5 years in the repair of coarctation of the aorta with satisfactory results.

9. Abdominal aneurysm: This may be treated in several ways, none of which is satisfactory entirely. A vein-in-lay graft has been employed with success in certain patients by Freeman 4. An aortic graft is feasible in certain cases if the aneurysm is not too extensive. Wiring or wrapping of the aneurysm as well as partial ligation of the aorta above the aneurysm have not produced satisfactory results in a significant number of patients.

10. Gangrene: Patient conservative treatment carried out over a long period of time may save limbs. Gas gangrene antitoxin is given. As a last resort however amputation may be necessary. The site for amputation should be selected carefully and decisions are made in part at least on the basis of the blood pressures in the lower extremeties as compared with those of the upper extremities (plethysmographic technique) (Fig. 9).

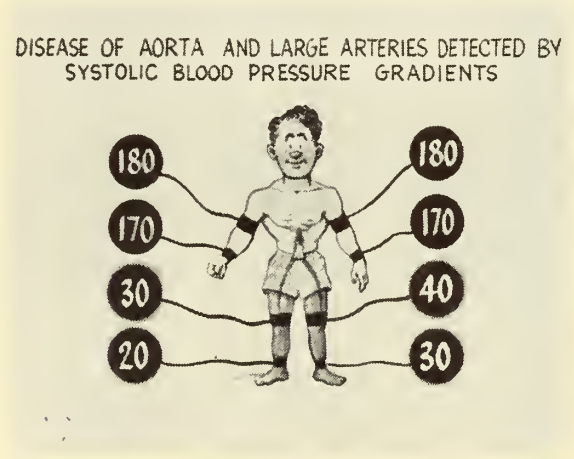


Fig. 9. The systolic blood pressure gradients aid in determining the lowest site for amputation.

The most common surgical procedure employed for the treatment of peripheral vascular disease is the lumbar sympathectomy. Sympathectomy is indicated usually when there are strong neurogenic factors limiting blood flow, when minimal tissue atrophy has occurred, especially when these changes are progressive, and when excessive sweating is present. Sympathectomy is contra-indicated in the presence of marked cerebral or cardiac disease, when peripheral blood flow is uninfluenced by removal of sympathetic vasomotor tone (posterior tibial nerve block), when extensive irreversible tissue damage has occurred, or when hemometakinesia is demonstrable. When advising sympathectomy one must keep in mind the undesirable side effects which occur occasionally. These are: postoperative neuritis which may be severe and occurs in about 20 percent of patients, disappearing usually in 4 to 5 months, failue of ejaculation which occurs when the first lumbar ganglia are interrupted bilaterally, and hemomtakinesia which occurs rarely. The primary beneficial effect of a sympathectomy is an increased circulation to the skin and digits as revealed by increases in skin temperature and blood flow. The improvement of nutrition to the tissues aids in the healing of skin ulcers and is evidenced by increased rate of growth of tissues especially of toenails (Fig. 10). Medical treatment after sympathectomy is indicated and includes the use of alcohol orally which produces a vasodilatation by a direct action on the blood vessel walls. Tobacco, after sympathectomy, no longer decreases blood flow and thus need not be withheld as far as the diseased limb is concerned. Body heating after sympathectomy is ineffective as a vasodilator as its effect is mediated through the sympathetic nervous system.



Fig. 10. Increased growth of toe nails after sympathectomy in a patient with thromboangiitis obliterans. Essentially no growth 6 months before sympathectomy, 5 mm. growth 6 months after surgery.

REFERENCES

1. Winsor, T.: Clinical Plethysmography, Parts I & II: Angiology, Vol. 4, 134-164, April, 1953.

2. Winsor, T.: Influence of Arterial Disease on the Systolic Blood Pressure Gradients of the Extremity. Am. J. Med. Sci. 220: 117, August, 1950.

3. Goetz, R. H.: On the measurement of the collateral circulation, with special reference to the indications for sympathectomy. Angiology 2: 201, April, 1950.

4. Freeman, Norman E.: Operations on large arteries. Application of recent advances. Calif. Med. 77: 229, October, 1952.

THE NEPHROTIC SYNDROME

Derrill B. Manley, M.D.

Medical Center, 1313 N. 2nd Street
Phoenix, Arizona

Few situations in medicine present greater complexities in handling than the nephrotic syndrome. Almost every practitioner, at least one or more times in his career, is beset with the problem of the edematous child. With this thought in mind, clarification of the syndrome is undertaken, with a view towards defining its subdivisions from the clinical, laboratory, and pathological standpoints.

I. Definition — In a recent comprehensive study by Barness, Moll, Janeway (1) the nephrotic syndrome was sub-divided into the nephrotic stage of chronic glomerulonephritis, and lipoid nephrosis. The former represented a form of the nephrotic syndrome without known antecedent history of acute glomerulonephritis or pyogenic infection, with persistent proteinuria and edema as the presenting signs and other evidence of chronic glomerulonephritis initially obscured, but ultimately becoming manifest. The latter was described as a form of the nephrotic syndrome manifested by edema, proteinuria, lipemia, essentially normal blood pressure and little, if any, hematuria or nitrogen retention. Both are characterized by a chronic course with exacerbations, remissions and in many instances eventual recovery.

Rosenblum, Lander, and Fisher (2) have remarked that the majority of their cases originally diagnosed as pure lipoid nephrosis were reclassified as chronic glomerulonephritis after observation over a long period.

The term nephrosis is used to denote a disorder in which albuminuria, hypoproteinemia and edema are the dominant clinical features, but without evidence of progressive renal insufficiency. It is thought that transient hematuria, hypertension or azotemia are not inconsistent with the diagnosis of nephrosis. Addis (3), on the other hand, states that nephrosis is not really a diagnosis in the full sense of the word, but only gives a name to symptoms that appear suddenly from nowhere without any history of development. He considers the combination of edema, cylindruria, the fatty infiltration of the tubule cells, the lipemia, and the proteinuria to be the nephrotic syndrome, but for the sake of treatment classifies all of these patients as being in the degenerative stage of glomerulonephritis.

II. Age, Sex and Race Incidence — Block, Jackson (4) in a study of forty (40) children with lipoid nephrosis, list twenty-six (26) boys and fourteen (14) girls. Of the forty, fourteen were six years of age or older at the onset of illness. The youngest was fifteen months, the oldest fifteen years.

Galan (5) reports that of eighty-four (84) patients with the nephrotic syndrome, the majority were two to four years of age, with the youngest being ten months of age, and the number of white cases was markedly greater than those in negros. There was a slight predominance of male cases.

III. Character of Disease — Barness, Moll and Janeway (1) report the onset in almost all instances of lipoid nephrosis and the nephrotic stage of nephritis was insidious. First symptoms noted were either edema around the eyes, rapid increase in weight, or an upper respiratory infection for two or three days prior to the appearance of edema.

Block, Jackson, et al (4) considered the diagnosis of lipoid nephrosis established when the following criteria were present: edema, proteinuria, good renal concentration ability, high blood fats and low blood protein with marked decrease in albumin, absence of retinopathy, absence of persistent azotemia, absence of persistent hypertension, no hematuria other than an occasional finding of about 10 red cells per high-powered field in a centrifuged freshly voided specimen. Nutritional history had no apparent relationship to the appearance of nephrosis. Breast feeding in infancy was not a significant factor. It was noted that by far the majority of children had received one or more immunizations, or had one or more of the common communicable diseases, or both, before they became ill with nephrosis. An upper respira-

A Review of Current Literature and a Survey of Cases at Denver Children's Hospital from 1940 through 1950.

°Work on paper done at Children's Hospital, Denver, Colorado. Presented as Resident-Intern Merit Award paper for 1951 to Kansas City Southwest Clinical Society, Kansas City, Missouri, October, 1951.

tory infection preceded the illness as often as not, but regardless of the relationship to onset, these were responsible for recurrences in children in whom the disease had been inactive for various periods of time. Nine children of the forty studied had some allergic manifestation.

Hermaturia in the nephrotic syndrome has been exceptional, but repeated examinations of the urine disclose showers of red cells from time to time in nearly every patient. Even in lipoid nephorsis, where absence of hematuria is regarded as essential to the diagnosis, red cells are occasionally found, according to Bradley and Tyson (6). On the whole, kidney function appears to be excellent. Many writers have stressed the normality of concentrating power, phenolsulfonphthalein excretion and urea clearance, and the absence of nitrogen retention, acidosis and other evidences of renal insufficiency. This is not surprising since there is little or no destruction of glomeruli, the renal vascular system is relatively undisturbed, and blood continues to perfuse renal tissue normally. However, renal insufficiency develops sooner or later in most cases of the nephrotic syndrome in which progressive renal damage occurs, as in the course of chronic diffuse glomerulonephritis, intercapillary glomerulosclerosis, and amyloidosis. On the other hand, in children with lipoid nephrosis, filtration rate and urea clearance may be increased markedly.

Even after prolonged illness these processes may be reversed in many patients, with every trace of the disorder disappearing and the kidneys returning to normal. In others, however, renal insufficiency may finally ensue as nephrons disappear and the glomerular filtration beds shrink. In this process the nephrotic syndrome clears. Proteinuria is less marked and may ultimately cease altogether, apparently as a result of the obliteration of defective glomeruli and the diminution in the available filtration surface through which protein may escape from the blood. As protein loss diminishes, the plasma protein concentration rises and peripheral edema regresses. Addis (3) interprets this as the transition from the degenerative stage of glomerulonephritis to the terminal stage.

Concerning edema, the distribution is governed by gravity and tissue tension. There is a predilection for the eyelids, particularly the lower lids, which may be attributed to the low pressure and the high distensibility of the skin in these areas. The genitalia and loose abdominal wall present similar characteristics. Failure of the lymphatic drainage when the eyelids are motionless and not blinking, as during sleep and recumbency, explains the tendency for edema fluid to accumulate about the eyelids during the night. Pleural effusion, ascites, acute pulmonary edema, localized edema of the glottis, and edema of the gastrointestinal tract may be encountered.

Even in the presence of overwhelming infection such as pneumococcal peritonitis, a nephrotic may show normal white cell counts. This is probably another manifestation of the diminished resistance to infection that these patients exhibit.

Schwartz, Kohn and Weiner (7) commented on the original use of the term, lipoid nephrosis, by Muller to distinguish the purely degenerative type of renal lesion from the inflammatory type. and mentioned its characteristically insidious onset. They made such a diagnosis in only forty children in over twenty years of observation, but in that same period observed over 400 children with typical symptoms of acute or chronic glomerulonephritis. They also noted, after prolonged observation, that several of these patients had distinct rises in blood pressure during early puberty and that Addis counts also revealed increased red cell counts in four cases and increased urinary casts in two cases.

Concerning calcium metabolism in nephrosis, Emerson and Beckman (8) reported the correlation of Roentgen changes in the bones with alterations in calcium metabolism in nephrotic children. The carpals and shafts of the phalanges, metacarpals, radius and ulna showed diffused rarefaction, but the epiphyseal lines were as dense as those of a normal subject. Most nephrotic children studied had normal growth rates. Low serum calcium concentrations, extremely low urinary calcium excretion, and abnormally low calcium retention were noted. The authors concluded that formation of bone matrix was normal, but calcification of shafts was incomplete because of deficient supply of calcium, and a general calcium deficit was present with epiphyses of growing bone being favored with regard to

calcium distribution at the expense of the shafts.

Rosenblum, Lander and Popper (9) report one case of clinically pure lipoid nephrosis who died from homologous serum jaundice during a period of remission. This child at various times received intravenous infusions of concentrated pooled human plasma and salt-poor human albumin with clinical improvement. Autopsy revealed liver findings of fulminant infectious hepatitis. Kidneys revealed findings consistent with lipoid nephrosis.

IV. Course and Prognosis – Janeway (10) has stated that in the group of children showing persistent hypertension, hematuria, nitrogen retention, the prognosis is poor and death due to renal or cardiac failure is apt to occur in a few years. In the group with so-called pure nephrosis, symptomatic recovery with or without persistent albuminuria occurs in a high proportion of cases who survive the period of several months to several years during which remissions and exacerbations of the edema continue. Infection is the predominant cause of death in the latter group, thus indicating prompt treatment of any febrile illness. Overzealous treatment is the second most important cause of death, reactions to intravenous injections, unwise tonsillectomies or other surgical procedures, or infections acquired in unnecessarily prolonged periods of hospitalization being incriminated.

Barness, Moll and Janeway (1), in the 208 cases studied, have noted that the so-called spontaneous remissions are common within two months of onset of the illness. As the disease progresses, spontaneous remissions apparently recur less frequently for any individual patient. Because of the difficulty in distinguishing between the nephrotic stage of chronic glomerulonephritis and lipoid nephrosis, and because lipoid nephrosis appears to be relatively common in childhood, all patients with edema, lipemia, low serum protein and albumin, and albuminuria should be treated with a reasonable degree of optimism, according to these authors. The disease will run a chronic course with remissions and exacerbations, but ultimate recovery will occur in many children, particularly if protected from infection, which has been the major cause of death in the past. Those patients who develop frank evidence of glomerular involvement, however, usually assume the poor prognosis of chronic nephritis.

Aldrich states that before chemotherapy, 88% of patients with nephrosis, who developed bacteremia and peritonitis or other severe infections, died. After chemotherapy, the mortality from severe infections dropped to about 40%.

The series of 34 children with lipemic nephrosis observed over a 12 year period by Heymann and Startzman (11) included 10 deaths. Three deaths occurred less than six weeks after onset. Out of 12 patients reexamined, of the series of 34 patients, from 1 to 17 years after their discharge from the hospital, 8 were thought to be definitely recovered and three probably recovered. Of the 34, ten or thirty percent died of intercurrent infection. They feel justified in prognosticating a better than 50% chance for recovery. The cause of death in lipemic nephrosis is either an intercurrent infection or terminal chronic nephritis, the latter occurring in their experience in approximately 8% of cases.

Hypo-amino-acidemia in children with nephrotic crises has been commented on by Farr and MacFadyen (12). The nephrotic child is apparently subject to an acute disturbance of plasma amino acid regulation which begins without clinical warning and appears to be self limited when not complicated by infection. This acute illness, termed "nephrotic crisis", is accompanied by a sharp and sudden fall in the amino acid content of the plasma. Abdominal pain with fever is often complained of, usually localized to one part of the abdomen. Gasseous distention, pallor, prostration, listlessness, nausea, occasional vomiting and mild diarrhea may be present. Onset is rather sudden and recovery may be as rapid as onset. Leucocytosis is always present during an attack. Changes in the concentration of plasma amino acid occur as abruptly as the clinical condition of the patient changes. The nephrotic crisis apparently has no relation to ordinary infections, it is not cyclic in occurrence and bares no evident relation to any environmental factors. Changes in the blood amino acids seemed to parallel the clinical course of the acute illness.

The literature, at one time or another, reveals accounts of practically every type of infection having a beneficial effect on the

course of nephrosis. Measles is apparently the most outstanding and most consistent in its effect. Blumberg and Cassady (13) have noted that improvement following measles in patients in the nephrotic stage of chronic glomerulonephritis is neither as marked or as lasting as that in lipoid nephrosis. They believe that the advent of chemotherapy and antibiotics may make measles a more practical and safer tool against nephrosis. In nephrotic patients responding ideally to measles, onset of disappearance of edema may be noted one to three days after rash becomes apparent. The urine may become albumin-free one to twenty days after onset of rash. Blood chemistries may become entirely normal. Meizlik and Carpenter (14) believe that possibly more favorable results may be obtained if measles is contracted in the early stages of nephrosis. Rosenblum, Lander and Fisher (2) have been impressed with the remarkable response to measles in edematous cases and have noted the trend toward higher protein levels after measles in both the albumin and globulin fractions. Many workers, however, question the wisdom of deliberately exposing edematous nephrotic patients to measles because of the dangers involved, despite available chemotherapy and antibiotics.

V. Treatment — It seems appropriate to comment that were any single therapeutic agent or combination of therapeutic agents effective in the treatment of the nephrotic syndrome, the literature would not present the myriad accounts of therapeutic measures tested that one encounters. Barness, Moll and Janeway (1) have recorded 64 various methods used for the 208 patients in their series. The large number suggests that few have been good enough to last. The removal of all foci of infection at an appropriate time is recommended. Cyclopropane is considered the anesthetic of choice in the presence of renal damage. Paracentesis can be utilized repeatedly for relief of discomfort, and is often more effective late in the disease. This is thought to be due to the thinness of the abdominal wall late in the disease and the fact that fluid collects more easily in the abdominal cavity than in other parts of the body. These authors suggest ambulation as long as the edema will permit. They consider paracentesis the simplest method of removing extra-cellular fluid if ascites embarrasses eating, breathing, or getting about. They advised keeping the patient at home or in a sheltered environment as much as possible, since long hospitalization exposes to more infection. Moderation in the struggle to eliminate edema is advised.

Block, Jackson, et al (4) have observed that some of the children who died in their series received very intensive treatment with large amounts of either blood, plasma or sucrose infusions and have considered the possibility that actual harm might have been done to the kidneys by these measures. They considered diuretics useful to give relief to the severely edematous child and felt that salt free albumin was probably the most effective of these. They were hesitant to use sucrose, at least in such quantities as to bring about a sudden rapid diuresis, because of the danger of resultant circulatory collapse. Periods of sudden change in edema are critical times for the nephrotic child, and therapeutic procedures at such time should be performed with much care. They suggest that any form of treatment is most effective when the patient is treated very shortly after the onset of first symptoms. In their opinion any child with edema and proteinuria should be hospitalized at once for diagnosis and treatment if nephrosis is present.

Gottfried, Steinman, and Kramer (15) recommend a high protein and salt poor diet, giving 3 to 6 grams of protein per kilogram of ideal body weight and a maximum of 1½ gms. of sodium chloride per day. Ferrous sulfate usually had little effect on the secondary anemia encountered in these patients. Calcium lactate by mouth was also without effect on the hypocalcemia.

Heymann and Startzman (11) are hesitant about the use of mercurial compounds as diuretics, and if used at all recommend that they be given intramuscularly only, since they observed two deaths following the intravenous use of mercurials in a 1:10 saline dilution. Tyson (16) reported that in repeated injections of mercurial diuretics in cardiacs, the only five reactions reported occurred in patients with the nephrotic syndrome.

* * *

This is the first section of a three part article. The second section of this article will appear in the December, 1953 issue.

PHOENIX Clinical CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 38141

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A forty-eight-year-old woman was admitted to the hospital because of chills and fever.

For one month prior to entry the patient had noted tiredness and anorexia. Three days prior to admission she developed a pounding frontal headache and was noted to have a low-grade fever. The day before entry she had a shaking chill followed by a temperature of 104 F., severe malaise, headaches and a vague ache in the muscles.

The menopause had occurred two years before admission, but one month prior to entry she had had an episode of vaginal bleading of a few days' duration, with irregular vaginal spotting since that time; she had taken stilbestrol daily because of hot flashes from six months until ten days prior to entry. Her father and one sister died of tuberculosis, and a brother died of Hodgkin's disease.

The temperature was 102 F., the pulse 100 and the respirations 20. The blood pressure was 150 systolic, 70 diastolic.

Physical examination was negative except for slight but definite tenderness on deep palpation in the right flank.

The urine had a specific gravity of 1.012 and gave a two plus reaction for albumin; the sediment was loaded with clumps of blood cells. Cultures of the urine grew abundant Escherichia coli. Examination of the blood showed a white-cell count of 16,000, with 77 per cent neutrophils and a hemoglobin of 13.2 gm. A nonprotein nitrogen was 16 mg. per 100 cc. Roentgenograms of the chest showed some prominence of the left side of the heart shadow; the heart did not appear to be enlarged and the lung fields were clear. Vaginal smears were doubtful for malignant cells.

Treatment with sulfadiazine resulted in a prompt subsidence of the symptoms and clearing of the urine. A dilatation and curettage was performed; the pathological report was atrophic endometrium. An intravenous pyelogram performed a few days before discharge was negative. She was discharged on the twelfth day.

SECOND ADMISSION (three years later). In the interval the patient had felt well; there had been no further vaginal bleeding. Two weeks before admission she noted that she tired easily. One week prior to entry she began to note chilly sensations and the following day she had a frank shaking chill. Her physician found 10 to 20 white cells in the urine and prescribed a triple-sulfonamide preparation. The urine became free of pus cells on this therapy but she developed headache, vague generalized backache, profuse sweats, chilly sensations, paroxysms of fever up to 102 F., and mild shortness of breath on exertion, especially when the temperature was raised. There had been no cough, chest pain or urinary symptoms.

Physical examination revealed a middle-aged woman who did not appear ill The neck veins were full. The lungs were clear. The heart was normal in size and the heart sounds per se were normal; over a clearly defined area from the xiphoid to the apex there was a harsh loud adventitious sound which was variable in timing but was mostly systolic. This sound was heard only when she was in the supine position, disappearing when she sat up, and its intensity was diminished by deep inspiration. Examinations of the abdomen and pelvis were normal. One Heberden node was present on the left little finger.

The temperature was 102 F., the pulse 100 and the respirations 20. The blood pressure was 140 systolic, 70 diastolic.

A urine of specific gravity 1.012 was normal. Examination of the blood showed a white-cell count of 6000, with a normal differential, and a hemoglobin of 11.4 gm. The erythrocyte sedimentation rate was 20 mm. in 60 minutes The nonprotein nitrogen was 28 mg. per 100 cc., the serum chloride 92 milliequiv. per liter and a fasting blood sugar 116 mg. per 100 cc. Agglutination tests for typhoid and undulant

fever were negative. A blood Hinton test was negative. Roentgenograms and fluoroscopic examination showed marked enlargement of the heart without characteristic configuration. The amplitude of the pulsations of the heart was diminished; there was no appreciable change in the size of the heart on the Valsalva and Mueller tests. There was some prominence of the superior vena cava and azygos veins. The lung fields were clear. An electrocardiogram showed normal rhythm at a rate of 100 a PR interval of 0.16 second, a QRS interval of 0.08 second and a tendency to low voltage. The T waves were upright in Leads 1 and AVL and flat in Leads 2, 3, AVF, V1, V2, V3, V4, V5, and V6.

In the hospital the pateint continued to have a temperature ranging from 100 to 101 F., with spikes up to 103 F. She had a few brief episodes of acute dyspnea usually associated with a rise in temperature; the longest of these lasted four hours. Digitalis and Mercuhydrin had no significant effect; Chloromycetin also had no noticeable effect and had to be discontinued after four days because of severe nausea and vomiting. The physical findings remained unchanged, with the addition of the following: blood-pressure dropped 10 mm., with deep inspiration; suggestion of gallop rhythm at the apex and of a paradoxical pulse; heart sounds more distant than at admission; neck veins pulsating at a 45 degree angle. On the seventh day the white cell count was 5400, with a normal differential, and an electrocardiogram was unchanged. On the ninth day an operation was performed.

DR. HOWARD C. LAWRENCE:

This woman's initial hospital admission was for the diagnosis and care of an acute febrile illness characterized by chills, fever, severe malaise, and headaches. Her physical examination was negative except for tenderness in the right flank. The laboratory examinations indicated definite urinary tract infection. Sulfadiazine therapy promptly eliminated the infection. Because of concern over the report made on vaginal smears, a D & C was carried out and demonstrated atrophic endometrium. I feel that this initial sickness had no direct relation to the ensuing difficulties other than that the second illness was initiated by an infection in the urinary tract.

It is noteworthy that the patient's health was good in the three year interval between the two hospitalizations. Her second illness started two weeks before admission with an ease to fatigue. One week prior to entry she began to note chilly sensations and the following day she had a frank shaking chill. Pus cells were found in the urine and a triple sulfa preparation was administered. The urinary tract infection apparently cleared but she developed headache, generalized backache, profuse sweats, chilly sensations, paroxyms of fever up to 102 and mild shortness of breath on exertion. There was no cough, no chest pain.

Her physical examination revealed full neck veins, clear lung fields. The heart was reported as being normal in size and the heart sounds were normal. A loud adventitious sound was heard in an area between the xiphoid and the apex which was variable in timing but was mostly systolic. This was heard only when the patient was in the supine position. Its intensity was diminished by deep inspiration. The blood pressure was 140/70 (compared with a previously reported pressure of 150/70), temperature 102, pulse 100, respirations 20. The urine examination was normal. The blood count was essentially normal except for a somewhat low hemoglobin value of 11.4 gm. The sedimentation rate was definitely elevated. The NPN was normal, as was a fasting blood sugar. The serum chloride was a low normal. Contrary to the physical findings the roentgenograms and fluoroscopic examinations showed a marked enlargement of the heart without characteristic configuration. The amplitude of the pulsations of the heart was diminished; there was no appreciable change in the size of the heart on the Valsalva and Mueller maneuvers. There was some prominence of the superior vena cava and the azygos veins. The QRX complex demonstrated a tendency to low voltage; the T waves were flat in the majority of leads.

The patient's course was a febrile one with spikes of fever to 103. There were some episodes of dyspnea. Digitalis, Mercuhydrin, and Chloromycetin therapy were apparently ineffective and were discontinued. Additional findings included: a drop of 10 mm. in blood pressure with deep inspiration; suggestion of gallop rhythm at the apex and of a paradoxical pulse; the heart sounds were more distant than at admission; the neck veins pulsated at a 45

degree angle.

It seems to me that this woman most probably had a pericarditis which complicated a urinary tract infection. Determination as to whether the pericarditis was one with effusion or whether there was a chronic constrictive fibrinous pericarditis seems in order. The differential diagnosis of cardiac hypertrophy and dilatation also bears consideration.

Pericarditis is probably rarely a primary disease. The most frequent pathologic conditions with which it is associated are 1) rheumatic fever, 2) pneumococcal infections, 3) coronary thrombosis with myocardial infraction, 4) chronic nephritis with uremia 5) pulmonary TB and 6) miscellaneous bacterial infections. Since pericarditis is usually secondary to disease of other organs, the symptoms are usually related to the primary disease during the early part of the illness. Our patient had symptoms definitely referable to a urinary tract infection. Acute fibrinous pericarditis is usually painless; when pain occurs it is usually because the pleura is involved. Auscultation characteristically reveals a to-and-fro sound corresponding to systole and diastole. The rub is most frequently heard over the 4th and 5th intercostal spaces close to the sternum. Change of position frequently will alter the characteristics of the rub. The "loud harsh adventitious sound" described in the protocol certainly isn't a textbook picture of a pericardial frition rub, but I interpret it to be one, nonetheless.

Acute fibrinous pericarditis may subside or progress to be complicated by effusion. This process usually has an insidious and somewhat gradual onset. It frequently is unassociated with pain. Dyspnea is rather characteristic. Distention of the neck veins is usually found. Palpation usually reveals a gradually vanishing apical pulse. Percussion demonstrates a widening of the relative dullness in the first and second interspaces to the right and left of the sternum. Variance in this area of dullness in the recumbent and erect positions is significant. X-ray evidence of enlargement of the cardiac shadow with loss of normal chamber contour is suggestive of effusion. Diminished cardiac pulsations as seen on fluoroscopy is rather characteristic. With large effusions the pear-shaped outline is usually seen.

The pericarditis associated with rheumatic heart disease may be painless., characteristically has a friction rub, and usually has some degree of effusion. It seems unlikely that such a diagnosis should be seriously entertained, however, because of the patient's age and the absence of other signs of a rheumtic state including evidences of valvular damage.

Chronic constrictive pericarditis is believed to be usually the result of a tuberculous infection. This patient's father and one sister died of tuberculosis so we can safely assume that the patient had had contacts. But no evidences of pulmonary or other foci of tuberculosis are suggested in the physical findings or the x-ray reports. Authorities feel that the tuberculous involvement of the pericardium occurs by direct extension from mediastinal lymph nodes. This sequence of events cannot be entirely ruled out in our current discussion.

The three outstanding complaints associated with chronic constrictive pericarditis are shortness of breath, swelling of the legs and abdominal swelling. Our patient had only the first of these three. Hepatomegaly, ascites, and signs of pleural fluid are seen in over half the cases. Our patient had none of these findings. Pulsus paradoxicus and a narrow pulse pressure may or may not be present in the chronic constrictive pericarditis. Rarely is a friction rub present. In this disease the heart may be normal in size, but, despite a common belief, may equally often be found to be moderately enlarged or rarely greatly enlarged. About half of the cases have demonstrable pericardial calcifications in the x-ray. The EKG commonly shows flattening or inversion of the T waves and low voltage is frequently observed. Our patient had a pulsus pariodoxicus, no significant change in pulse pressure, a definite friction rub, and marked enlargement of the cardiac shadow on x-ray. No pericardial calcifications were reported. The EKG findings in our patient were compatible with a diagnosis of chronic constrictive pericarditis.

Differentiation must be made between pericarditis with effusion and cardiac hypertrophy and dilatation. Osler's summary of the differential diagnosis is quoted:

"(1) The character of the apical impulse in dilation, particularly in thin chested people, is comonly visible and wavy.

(2) The shock of the cardiac sound is

more distinctly palpable in dilatation.

(3) The area of dullness in dilatation rarely has a triangular form; nor does it, except in cases of mitral stenosis, reach so high along the left sternal margin or so low in the fifth and sixth interspaces without visible or palpable impulse. Dullness, shifting with change of position, speaks strongly for effusion.

(4) In dilatation, the heart sounds are clearer, often sharp or fetal is character; gallop rhythm is common, whereas in effusion the sounds are distant and muffled.

(5) Rarely in dilatation is the distention sufficient to compress the lung and produce the tympanitic note in the axillary region, or flatness behind.

(6) The x-ray picture may be very definite and unlike any form of dilatation or hypertrophy of the heart."

The interpretation of the final sentence in the protocol proves to be difficult. It reads "on the ninth day an operation was performed". If the patient had a pericarditis with effusion it would seem that a pericardial tap would have been done. Was the intended tap referred to as an "operation"?

In a purulent effusion repeated pericardial taps may prove ineffective and a surgical drainage is indicated. If this was the proposed surgery, information about the preceding taps has apparently been withheld. Finally, did our patient have chronic constrictive pericarditis and was the proposed surgery to be the excision of the offending pericardium?

It seems unlikely that the patient would be taken to surgery for excision of a constricting pericardium on the basis of the findings presented.

There are reported cases of extensive pericardial effusions resulting from primary malignancy of the pericardium; a larger number report effusions resulting from metastatic implants in the pericardium. Cases of primary amyloidosis involving the heart whose symptoms and findings closely resemble those of chronic constrictive pericarditis are to be found in the literature.

CONCLUSIONS: I shall elect to interpret the operation mentioned as being a pericardial tap rather than a surgical procedure. My diagnosis is tuberculous pericarditis with effusion. A second choice, if the patient actually was subjected to intrathoracic surgery, would be chronic constrictive pericarditis in which there was an associated cardiac enlargement.

DIFFERENTIAL DIAGNOSIS

DR. EARLE M. CHAPMAN: "Adventitious." I had to go to the dictionary to refresh my memory about this word; it is defined as "added extrinsically, not essentially inherent, acquired, accidental, casual". This word, which is used in many ways, is the most important choice in this whole physical examination.

I should like first to look at the x-ray films.

DR. STANLEY M. WYMAN: The first two films, taken during the original admission to the hospital, show no evidence of intrinsic pulmonary disease. The heart shadow may be a little prominent in the left ventricular portion, but that is not very striking. The aorta is not remarkable. The bones appear well preserved, and I see no other evidence of disease. The films taken in the second admission demonstrate a great change in the size of the central heart shadow, which is now rather rounded and shows loss of normal geographic contours. According to the fluoroscopist there was definite diminution of pulsation of the margins of this shadow. There is no evidence of fluid in the pleural spaces and nothing that I can recognize in the lungs themselves. The superior vena cava and azygos vein are more prominent than usual and are certainly more prominent than on the original examination.

DR. CHAPMAN: Is there any evidence of calcification around the heart in any of those films, especially along the diaphragmatic surface?

DR. WMYAN: No; none that I can see — and according to the fluoroscopists's report it was not seen at fluoroscopy, which is the best time to make this observation.

DR. CHAMPAN: Isn't it a medical aphorism that the absence of pulsation in the heart with clear lung fields is diagnostic of pericardial effusion?

DR. WYMAN: I think that is the most probable explanation for this situation.

The films taken from the pylegrom show no significant intrinsic disease that I can recognize. The left kdiney may be rotated on its long axis.

DR. CHAPMAN: Do you see any calcification in the region of the kidney?

DR. WYMAN: No; there is no evidence of renal or adrenal calcification. I am not impressed with the pyelogram.

DR. CHAPMAN: And these little areas in the lung out here — you do not interpret them as an early lesion of tuberculosis on the early film.

DR. WYMAN: I think it may be a tiny scar but not a significant one.

DR. CHAPMAN: Does it show on the film?

DR. WYMAN: Perhaps, but at any rate I would not attach any significance to it. It has not changed or become worse.

DR. CHAPMAN: In reconstructing the situation I can only link up the first hospital entry with the entry three years later in so far as one has to suspect the possibility of a tuberculous lesion in the kidney. Since the patient had blood in the urine and evidence of infection, which evidently responded to sulfadiazine, the supposition is that there was a bacterial infection from which she recovered completely. The vaginal bleeding at the time, I assume, was due to stilbestrol therapy. I cannot link the first entry with the second.

When I come to the next problem of her departure from health, it seems clear to me, and the x-ray films confirm it, that she had pericardical effusion: pericarditis with effusion can be caused by a number of things. The one thing that I was rather surprised by was that there was not a better clinical description of the state of the venous pressure — only the remark that the veins were filled and pulsated at a 45 degree angle. It would have been helpful to know more about this. The other things I assume are absence of enlargement of the liver and spleen, and of ascites.

DR. REED HARWOOD: At the time she was operated on, she had no ascites or, as far as I could make out, enlargement of the liver or spleen.

DR. CHAPMAN: A total protein was not included at that time; I take it that no total protein was done on the patient before operation.

I am faced with the diagnosis of a rather acute process with pericardial effusion and a spiking fever; what are the possibilities? The most common basis is a tuberculous lesion; The next, rheumatic fever, and likewise the absence of a precordial pain and other signs do not fit with the patient's having had a coronary thrombosis.

Subacute bacterial endocarditis also seems to be ruled out, although it would have been nice to have a blood culture from this patient.

DR. BENJAMIN CASTLEMAN: The blood culture showed no growth.

DR. CHAPMAN: That would tend to rule out acute bacterial invasion by the usual type of organism that causes pus formation.

Malignant tumors? I noted that there was Hodgkin's disease as well as tuberculosis in the family history; therefore one thinks of the possibility of this being a lyphoma in the lung root. In the description of the x-ray films it seemed that the left side of the heart was rather large; in your interpretation, Dr. Wyman, you mentioned no suggestion of nodes in the hilum.

DR. WYMAN: No; I do not see them.

DR. CHAPMAN: I do not either, so I shall discount lyphoblastoma.

Another condition that might cause this is diseminated lupus erythematosus, but there was no description of skin lesions or multiplicity of effusions in joints that would lead one to suspect this. There was one Heberden node in the little finger; that is a very tiny "red herring". Dr. Walter Bauer and Dr. William Clark described a pericarditis in 12 per cent of 62 cases of rheumatoid arthritis. I did some multiplying; that is seven and a half patients. Dr. Ropes, would you tell us how many patients in your series had pericardial effusion?

DR. MARION W. ROPES: The incidence of effusion was low — approximately 6 per cent. The incidence of pericarditis was very high, in our series and in another autopsy series going up to 44 per cent.

DR. CHAPMAN: Why did she have pericarditis with effusion and this appearance? One disease that can simulate this picture closely is mitral stenosis; I must mention that briefly. In mitral stenosis, the left-ventricular filling defect, — the impedance of filling of the left ventricle, — is due to the tight mitral valve; in chronic constrictive pericarditis, the insufficiency of filling of the left ventricle is on the basis of fibrosis about the left ventricle. I think it was Dr. White who reported in 1948 that fibrosis can involve the grove between the left auricle and the left ventricle. Of course, when the groove is decreased the

diastolic capacity of the ventricle is decreased, producing a high back or pulmonary pressure that can be measured by the catheter. The same results are obtained from catheter studies in this condition as are found in mitral stenosis. Were catheter studies done?

DR. CASTLEMAN: I do not believe so.

DR. CHAPMAN: I do not believe anything here suggests that she developed mitral stenosis between the ages of 48 and 51, but I must mention it in passing.

That brings me back to what I think is the most likely diagnosis — pericarditis with effusion. The "adventitouis" sound I should call a friction rub.

The next test of the situation is: What was the operation and why was it done? It is significant that the electrocardiographic changes were consistent with pericarditis and in fact suggested an extension of the process into the superficial layer of the myocardium, not with true infarction of the myocardium. The patenit was going downhill and I think had the signs of cardiac tamponade — Beck's classical triad: rising venous pressure, falling arterial pressure and a small quiet heart. In a way she had this. Dr. Edward D. Churchhill and Dr. Soutter probably would object to the phrase "a quiet heart"; Dr. Churhill says he almost never hears it. The neck veins finally become pulsating at an angle of 45 degrees and the heart sounds were more distant — the heart was not smaller but it was quieter, so she must have developed the picture of cardiac tamponade, which indciated an exploratory operation.

What studies would help to make the diagnosis? An engiocardiogram might have helped. Was one done?

DR. CASTLEMAN: No.

DR. CHAPMAN: Where was the incision made and what was done? I suppose I should guess about that.

DR. CASTLEMAN: No.

DR. CHAPMAN: Well, let me; I would like to. The surgeons may have put a needle in, taken out some fluid and squirted in streptomycin. As I understand it, aspiration and pericardiectomy are new methods for diagnosis and treatment of pericarditis with effusion. They may have suspected that she was forming fibrosis and developing a chronic constrictive pericarditis, although there was no clinical history of it; this exploration might have been designed to relieve the picture of cardiac tamponade due not only to fluid accumulation but to a rapidly developing fibrosis. This is supported, perhaps, by the electrocardiographic evidence. There are several approaches used in that operation; Blalock would make an incision in the fourth interspace and remove the fourth and fifth costal cartilages and really expose the heart so that the possibility of fibrous rings about the groove between the left auricle and ventricle as well as the right side could be explored. In their experience they have sometimes had to go back and do both sides. There is no evidence in the x-ray films to support this situation as Dr. Wyman tells us there is no calcification present. However, in the Massachusetts General Hospital cases, reported in 1948, only half had calcification visible by x-ray examination — chiefly along the diaphragmatic surface, was it not? That leads me to the final consideration of what was done. Was it decortication or just a decompression? I do not know.

It is possible that a Hodgkin node might have been in this picture, but I do not believe so. I am still going to make my first choice tuberculosis.

DR. CASTLEMAN: A needle was introduced below the xiphoid and driven posteriorly and superiororly into the pericardium; a large amount of thin amber-colored slightly bloody fluid was present; about 280 cc was withdrawn and replaced with about 180 cc. of air. That was the procedure that was done before the operation.

Dr. Harwood, would you tell us your thoughts about the patient before operation?

DR. HARWOOD: Dr. Chapman summed up the clinical situation very well. We had an acutely ill patient who was getting worse all the time. Dr. Conger Williams saw her with me. It was perfectly obvious that she had pericarditis with an effusion and cardiac tamponade. The onset was so abrupt that we thought there must be some acute infection — probably not tuberculous pericarditis, which I had always thought was rather slow in onset. We believed that we had ruled out a bacterial pericarditis because both the blood culture and white-cell count were normal and the pericardial fluid failed to show any bacteria. It was Dr. Williams' thought that she might have



Various factors during pregnancy (intestinal displacement, atony, inactivity) make it virtually impossible for most women to go through the gestation period without constipation.

CONSTIPATION IN PREGNANCY:

Satisfactorily controlled with Metamucil®

Metamucil, with its physiologic principles of "smoothage" and "normohydration," is well tolerated for pregnancy constipation. This bland vegetable colloid may be used throughout the entire nine-month period without fear of forming a "habit" and without irritation to the mucosa.

Greenhill[1] suggests that Metamucil be given every other night. He also recommends that Metamucil be given in conjunction with a proper diet, during the lying-in period of the puerperium.

Metamucil is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

1. Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 10, Philadelphia, W. B. Saunders Company, 1951, pp. 103-104; 311; 332.

SEARLE Research in the Service of Medicine

virus pericarditis, and for that reason we gave her Chloromycetin. However, the Chloromycetni did not help. We believed we would lose the patient if we did not find out whether she had tuberculous pericarditis or not. It was with the idea of finding out that we agreed that a biopsy was justified.

CLINICAL DIAGNOSIS

Pericardial effusion; Tuberculous

Dr. Chapman's Diagnosis

Tuberculous pericarditis, with effusion

Anatomical Diagnosis

Tuberculous pericarditis

PATHOLOGICAL DIAGNOSIS

DR. LAMAR SOUTTER: The biopsy was simple to do, particularly after aspiration of fluid from the pericardium. The aspiration enabled us to estimate the thickness of the paricardium. Injection of air into the pericardium gave us a good outline of the heart. I wonder if Dr. Wyman would show the film that demonstrates this. The biopsy was performed through the fourth interspace anteriorly. This biopsy gave us an immediate diagnosis, with little hazard to the patient. By being able to establish the diagnosis, we could start treatment at once — a distinct advantage.

DR. CASTLEMAN: Could you say that the x-ray picture could not be due to metastatic carcinoma? Was that in the differential diagnosis?

DR. HARWOOD: We thought of that as a possibility but did not think the type of fever was consistent with it.

DR. WYMAN: I thought of that possibility but excluded it. In this film after air injection the margin of the pericardium on the inner aspect can be seen fairly well in several projections. There is a shaggy, irregular, frond-like appearance to the surface of the heart and to the pericardium itself. I do not see the characteristic nodules that I would expect to see if it were metastatic carcinoma.

DR. CASTLEMAN: The biopsy that Dr. Soutter took confirmed Dr. Chapman's diagnosis of tuberculosis, following which she apparently received a large amount of streptomycin.

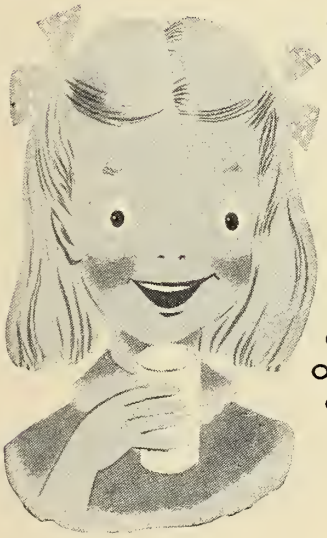
DR. HARWOOD: Following the operation she had two interesting findings: She developed pleurisy on both sides, with pain, friction rub and small amount of ascites. These were interpreted as being due to a hematogenous spread of tuberculosis, although we had no proof of it. She was started on streptomycin and improved only slightly at first, as I recall. She had para-aminosalicylic acid, which she could not tolerate. Dr. Theodore Badger, whom we asked to see her, suggested that she be given the sodium salt of para-aminosalicylic acid; this she was able to take in full dosage. Her fever subsided and she began to recover. She was in the hospital for six months; at the end of five months her sedimentation rate was normal, but then she developed rheumatoid arthritis, so we were no longer able to get any infromation from this test. She was continued on the para-aminosalicylic acid for about ten months and had streptomycin for about seven months; she has had two short courses of it since then, and she is now completely off therapy of any kind, except for limited activity. She goes to work two or three hours, three or four times a week.



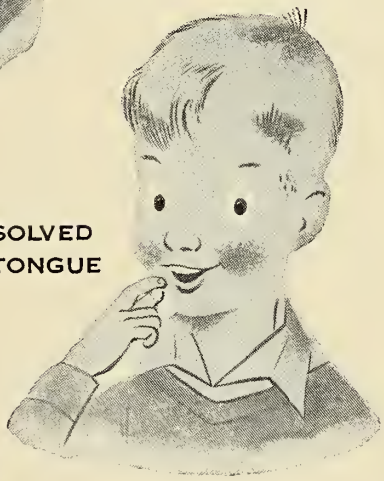


Children take it without the least bit of fuss...

SWALLOWED WHOLE



CHEWED— OR IN FOOD OR LIQUID



DISSOLVED ON TONGUE

- The Best Tosting Aspirin you Can Prescribe.
- The Flovor Remains Stable Down to the Last Toblet in the Bottle.
- 24 Toblet Bottle... 2½ gr. eoch 15¢

2½ gr. ◐ ⇨ ◑ 1¼ gr.

Grooved Tablets— Easily Halved



NEW FLAVORED

CHILDREN'S SIZE

BAYER ASPIRIN

We will be pleased to send samples on request

THE BAYER COMPANY DIVISION of Sterling Drug Inc., 1450 Broadway, New York 18, N.Y.

The PRESIDENT'S *Page*

THE STATE OF HEALTH IN ARIZONA

All of us are vitally concerned with and interested in the public health problems of our state. Recognizing its obligation to the peoples of Arizona, your Association took early lead in making available the services of the medical profession. Possessed of special training, especially in the field of health, it comes well equipped effectively to assist in the development of a sound and practical solution to the present day complex situation. In a recent statement issued by Governor Pyle he had this to say and I quote in part:

> "From the moment of the supreme court's action on Arizona's previous laws, there has been an acute problem of responsibility in determining who could best prepare legislation that would be both workable, and acceptable to the legislature and the courts. Very shortly after the magnitude of the problem began to be more clearly understood, a first and most significant step toward solution was taken when the Arizona Medical Association volunteered in early July to help in any way it could, and by July 31, had accepted my suggestion that it name a committee to be charged with direct responsibility for assisting in the work. Thus, during a long period in which it might have appeared that little or nothing was being done to overcome an apparent vacuum in public health work, actually a great deal of planning and organization was accomplished.
>
> "It is expected that an intensive 90-day effort will result in the presentation to the second regular session of the 21st Legislature in January of a code that will be practical in its operation, entirely sufficient from a medical standpoint, and legally sound."

It continues to be both the policy and the profound belief of your Association that everyone of our members has the moral obligation and duty to donate the best of his services and abilities to problems concerning the health and welfare of Arizona citizens. As your President, I appointed a special committee on Health and Sanitation Code for the State of Arizona, headed by Dr. Reed D. Shupe of Phoenix; who will serve as chairman; Drs. William B. Steen of Tucson; Robert M. Matts of Yuma; Ernest A. Born of Prescott; Carl H. Gans of Morenci; Jesse D. Hamer and Preston T. Brown, both of Phoenix, and your President who will serve in an ex-officio capacity. Each member has agreed to assume this additional responsibility and it is my firm conviction that we may expect results for which we shall all be grateful.

EDWARD M. HAYDEN, M.D.
President

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 10 NOVEMBER, 1953 NO. 11

EDITORIAL BOARD

R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson

ASSOCIATE EDITORS

William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix

COMMITTEE ON PUBLISHING

R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford
Darwin W. Neubauer, M.D. ..... Tucson

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS

J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

TOO MANY MEDICAL JOURNALS?

This remark has been expressed a number of times recently by various commentators while reviewing the present status of publishing the voluminous amount of literature which is crossing physician's desks in the various medical journals.

It has been intimated that much of the material in the scientific articles is mediocre and hardly worthy of printing. And to remedy this it has been suggested that if several of the states who are publishing the smaller journals would combine and issue one journal the quality of our journals would be improved. In addition to our state journals and the American Medical Association journal, every specialty has from two to a half dozen journals covering their own specific literature. To know something of the reading habits of the profession today give some clues to the answer.

A rather cursory oral poll of the readers of our own State Journal reveals some interesting facts. No one reads all the scientific articles. The specialists read the articles pertaining to their own specialty. Practically every one reads Dr. Guillermo Osler's column. Also the editorials and any news notes are quite generally read. Clinical pathological cases are quite popular. And this applies to programs of medical meetings as well as journals.

And it can be further added that no one reads any journal from cover to cover. Medicine has become so specialized and literature so extensive that the average practitioner does well to keep up to date on his own branch of practice. It might be added that the Table of Contents in a journal is one of the first things that is read. And then the doctor reads the summary of the scientific article that attracts his attention and then may read the whole article if he thinks he might find some new thoughts.

So with this information at hand why should we go on publishing scientific papers that are seldom read? Who profits by it? The writer believes that the answer to these two questions is the most important reason for publishing medical journals. And the answer is The Authors. When an essayist prepares a paper, he usually reviews the literature on the subject, at least enough to bring him up to date on all angles. Then he embodies his own opinion and experiences in his essay. Most editors

have a rule that a paper must be read before a controversial body before it can be published. When the author has fulfilled these postulates, he is usually quite well informed on his subject. The controversial body, whether it is the natonial, the state, the county, or the hospital staff extend him the courtesy of listening to his production. Few papers ever in our top journals are actually original. So if an author is to succeed in making an impression on his listeners and readers, he must have some interesting experiences, or some original opinions on his subject. And unless he does, or if he spends too much time rehashing facts and material that is too generally known he soon looses the interest of his listeners. Few speakers can maintain the interest of their listeners longer than 15 minutes. The supply of scientific papers has taken a beating the past ten years because our controversial bodies have had to spend so much time with the medical economic section of their programs.

But after all is said and done the writer believes that one of the best ways for medical groups to improve the medical knowledge of their members is to have them write scientific paers and have enough journals to publish them. And we will probably have medical journals as long as our advertisers continue to patronize us.

CLINICAL SESSION PLANNED FOR GENERAL PRACTITIONER

CHICAGO — Have you made your plans to attend the seventh annual Clinical Session of the American Medical Association in St. Louis, December 1-4? More than 3,500 physicians will be there.

A program has been designed to give the general practitioner an opportunity to see and hear the latest developments in medicine. More than 150 papers by outstanding physicians will cover such topics as internal medicine, surgery, pediatrics, obstetrics and gynecology, tuberculosis and other diseases of the chest, cardio-vascular diseases, arthritis, dermatology, gastrointestinal diseases and neuropsychiatry.

One outstanding feature will be an exhibit symposium on the prevention of traffic accidents. This will include discussion of the responsibilities of the physician in telling his patient when not to drive and what other precautions the physician should take in such special situations as the testing of the drinking driver and the care of the injured after an accident. Physicians and representatives from the National Safety Council and several police departments will participate in the symposium.

Other special features will include fracture demonstrations; problems of delivery with manikin demonstrations by leading obstetricians, and a diabetes exhibit and question-and-answer conference.

All scientific activities will be held in the Kiel Auditorium, where there are ample facilities for the lecture program. The Scientific Exhibit of about 80 displays will be correlated as far as possible with the clinical presentations. The Technical Exposition will consist of about 160 exhibits covering all types of office and medical practice needs.

Arrangements have been made for color television to be presented through the cooperation of Smith, Kline and French Laboratories. A motion picture program covering all the important problems which the general practitioner faces also will be presented. These will be shown continuously, with the authors present, whenever possible, to discuss their work.

The House of Delegates will meet in the Jefferson Hotel. Every physician should make an effort to attend one or more of these sessions.

TRUSSES — SURGICAL SUPPORTS

GROVE'S

Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

The Professional Board

TUBERCULOSIS PROBLEM IN ARIZONA

O. J. Farness, M. D.

Tucson, Arizona

TUBERCULOSIS IS ARIZONA'S NO. 1 HEALTH PROBLEM. WHILE HEART DISEASE RANKS FIRST AS THE LEADING CAUSE OF DEATH FOR ALL AGE GROUPS, TUBERCULOSIS IS STILL FIRST IN THE AGE GROUP BETWEEN 25 AND 40 – THE MOST PRODUCTIVE YEARS OF A MAN OR WOMAN'S LIFE.

TUBERCULOSIS IS SPREAD BY CONTACT AND IS PREVENTABLE. THERE IS SIMPLY NO NEED TO SADDLE OUR YOUNG MEN AND WOMEN WITH A DISABLING DISEASE WHEN WE HAVE AT OUR DISPOSAL THE MEANS OF PREVENTION. YET OUR STATE PRESENTS A VERY DISCOURAGING OUTLOOK. OUR DEATH RATE FROM TUBERCULOSIS IS MORE THAN TWICE THE NATIONAL AVERAGE OF ABOUT 19 PER 100,000 POPULATION. IN 1952, 492 PERSONS DIED OF TUBERCULOSIS. ABOUT 70% OF THESE WERE RESIDENTS OF MORE THAN FIVE YEARS. IF WE USE THE STATISTICAL RULE OF THUMB THAT EVERY DEATH REPRESENTS TEN ACTIVE CASES, WE BECOME IMMEDIATELY AWARE OF A TREMENDOUS PROBLEM.

WHAT CAN BE DONE BY A GOOD CONTROL PROGRAM HAS BEEN REPEATEDLY DEMONSTRATED IN OTHER STATES. WISCONSIN'S DEATH RATE PER HUNDRED THOUSAND IS DOWN TO SEVEN, MINNESOTA'S IS ABOUT 8 AND NEBRASKA'S ABOUT 6. THESE STATES HAVE HAD CASE-FINDING AND TREATMENT PROGRAMS GOING ON FOR YEARS AND ARE NOW ARE THE POINT OF REAPING THEIR REWARD. THEIR SANATORIA ARE EITHER BEING CLOSED OR CONVERTED TO OTHER USES. THIS DOES NOT MEAN THEY ARE RELAXING THEIR CONTROL PROGRAM. THEIR CASE-FINDING IS RATHER BEING INTENSIFIED BECAUSE THE PEOPLE WANT IT. THE TAXPAYER HAS COME TO REALIZE THAT PREVENTION IS THE CHEAPER WAY. A SICK MAN OR WOMAN IS A CONSUMER AND NOT A PRODUCER. IT COSTS ABOUT $14,000 PER INDIVIDUAL CASE OF TUBERCULOSIS. THIS MONEY HAS TO COME FROM THE INDIVIDUAL HIMSELF OR FROM THE TAXPAYER.

WE IN ARIZONA HAVE BEEN HANDICAPPED IN THAT SOME OF OUR LAY SPOKESMEN REFUSE TO RECOGNIZE THAT WE HAVE A PROBLEM AND HAVE BEEN SUCCESSFUL IN THWARTING THE EFFORTS OF THOSE WANTING TO DO SOMETHING ABOUT IT. HOWEVER, BRIGHT SPOTS ARE SHOWING THROUGH THE GLOOM. LAST YEAR THE GOVERNOR APPOINTED A FACT-FINDING COMMITTEE AND THEY DID AN EXCELLENT JOB. FROM THIS SHOULD COME A BASIS FOR LEGISLATIVE ACTION.

WE AS DOCTORS, ARE NOT WITHOUT BLAME. MANY OF US SIMPLY SHRUG OUR SHOULDERS AND LOOK UPON IT AS A HOPELESS SITUATION. INSTEAD WE SHOULD BE MORE DILIGENT IN REPORTING OUR CASES. WE, AT LEAST, SHOULD HAVE THE GOOD MANNERS TO REPORT ANY CASES UNDER OUR CARE TO THE LOCAL HEALTH DEPARTMENT.

AS DOCTORS, AND I HOPE AS GUARDIANS OF OUR PATIENT'S HEALTH, OUR POSITION AND OUR RECOMENDATIONS ARE SIMPLE. WE WANT A UNIFORM CASE-FINDING PROGRAM THROUGH THE MEDIUM OF TUBERCULIN SKIN-TESTING AND X-RAYS. WE WANT AVAILABLE BEDS TO ISOLATE AND TREAT THE SICK PERSON WITH TUBERCULOSIS. AND ALONG WITH THIS GOES THE ALL IMPORTANT REHABILITATION PROGRAM. LET US GET THE PEOPLE AS EXCITED ABOUT TUBERCULOSIS AS THEY ARE ABOUT POLIO AND CANCER AND WE WILL HAVE LITTLE TROUBLE IN BRINGING OUR GOOD STATE IN LINE WITH THE BEST.

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

Mrs. Secretary Oveta Culp Hobby (Health, Education and Welfare) has been associated with two topics of interest to Guillermo. . . . She voiced a fear and a warning of BIOLOGICAL (GERM) WARFARE in a radio interview. One can be fairly sure that the question was planted, and the answer was meant to needle the public interest in Civilian Defense plans. ARIZONA MEDICINE has been alerted on this subject for several years. . . . Secondly, the announcement of her Special Assistant for Health was as good a choice as anyone could possibly make, Dr. Chester Keefer of Boston. He is a physician, a practical scholar, and a terrific organizer. He was 'Mr. Penicillin' in its early days, and came off the hot spot with nothing but laurels and friends . . . Viva Oveta!

Evidence of the evaluation of erythromycin has begun to trickle in. Ricci of Rome, Italy, has found that both convalescent and 'healthy' diphtheria carriers can be sterilized by the third day, and usually sooner. . . . Toxoid and antiserum were used also, as indicated. . . . Erythromycin (Erythrocin) is still mightily expensive, however, and Terramycin, Aureomycin and Chloromycetin also haven't been reduced as fast as some of the preceding drugs.

Several years ago this column contained a favorable note concerning the use of PENICILLIN instead of silver nitrate to prevent OPHTHALMIA IN THE NEWBORN. It was suggested that laws and conventions might make acceptance difficult. . . . Now at least one nearby state (California) has made its use legal as an alternative. The state still supplies wax ampules of silver nitrate free, but you buys your own penicillin ointment. . . . The shared usage is quite a concession, since silver nitrate has been mandatory since 1915.

We recently had a conversation with a midwestern chest surgeon who HATES PNEUMOTHERAPY with a great passion. He stated, however, that he had seen a patient whose life had been saved by pneumoperitoneum. . . . After noting the incredulous and amazed expression of his audience, he went on to explain that the patient had been shot in the abdomen, the bullet had gone thru the PNP area and missed all vital organs, and the patient was actually benefitted since it let all the air out!

A Sunday supplement magazine, 'THIS WEEK', describes the search for a PLASMA SUBSTITUTE as practically ended. Quite a lot more certain about it than medical literature has been. . . . They quote a release by the Federal Civil Defense Administration and Department of Defense which states that artificial (synthetic) blood plasma holds THE NO. 1 SPOT for emergency treatment of hemorrhage and shock. Natural blood plasma is to be used only when the substitute is not available. . . . Whole blood is still needed for transfusion of sick and injured, and for defense reserve. . . . 'DEXTRAN' is the substitute plasma. It requires no typing. It is free from the hazard of virus contamination. It is inexpensive. It keeps indefinitely. Toxic reactions are rare.

Medical triumphs are of various sizes. The TRIUMPHS OF ANTIBIOTICS have been large and small, and have come in batches which sometimes obscure the details. . . . One can recall the treatment of pneumonia, the effect on bacterial endocarditis, etc. Occasionally we notice a defeat in which a whole procedure such as mastoidectomy is eliminated. . . . Now we have another similar surrender when Flippin declares that there is "no longer a place for tube or open drainage in the treatment of empyema." Medical therapy, using penicillin systemically and intrapleurally (and daily), usually suffices. If the lung fails to re-expand, enzymatic decortication may do the job. Surgical decortication is a last resort.

Readers of hospital journals and supply bulletins have seen the new TIP-PROOF INTRAVENOUS STAND. It is one of those things which first causes appreciation, then envy, then covetousness. . . . Actually, it isn't a conventional stand, with a spreading base at the floor (and a potentially tilting pair of bottles at the top.) It is an aluminum pole, weighing only 2½ pounds, adjustable to the height of the room, and attached to the floor and ceiling by rubber tips. . . . The bottles are hung from brackets at the desired height, and the advertisement shows a nurse trying unsuccessfully to knock the pole down with a baseball bat. . . . The name is 'Polecat I-V Stand', by Aloes, which fits (in a certain sense) our demand for descriptive names for products.

The darndest medical story we have seen in months is the SUBSTITUTION OF MEDICAL



MEDICAL & DENTAL

Bulletin

Published Monthly By

MEDICAL & DENTAL FINANCE BUREAU

GEO. E. RICHARDSON, Pres.

HOME OFFICE:
FIRST STREET AT WILLETTA
ALPINE 8-7758

DOWNTOWN OFFICE:
407 PROFESSIONAL BLDG.
ALPINE 4-4688

Issued Monthly

Free to Practicing M.D.s



STUDENTS FOR 'IRON LUNGS' in the catastrophic polio epidemic in Copenhagen last year. Respirators were in very short supply, so bag-ventilation was used. . . . Danish and foreign specialists could not cope with the demand, so an appeal was made for help from senior medical students. In a month they needed to use juniors, who rose to the occasion very well. Finally, they used dental students. About 1,400 of the 1,700 medical students in Copenhagen assisted in the program. . . . The value of this enforced substitution of man for machines is hard to estimate but it makes a heroic tale.

The report by a chemical manufacturer that 'exchange type' RESINS may relieve migraine and epilepsy will require some further proof, but the theory is interesting. . . . It is said that artificially produced convulsions occur when there is an excess of sodium and a deficiency of potassium in the brain. ION exchange resins replace the sodium with potassium, when given orally, and have been followed by relief in patients with MIGRAINE headaches or EPILEPSY.

A physician from San Francisco was talking informally but (as you can see) not entirely off the record. San Francisco is known as the heart of the PNEUMOPERITONEUM country. . . . After apologizing because so many patients received PNP, he said that there were many indications for it, and several varieties. There is the common or Therapeutic type; there is the Disciplinary type; and there is the Diplomatic type. . . . Everyone had a good laugh, but in thinking it over later, it seemed that there could be even more subdivisions, — There might be the Accidental type, since Banyai started his first case while aiming at the pleural space. There could be the Spontaneous type, occuring in public speakers. . . . Then, too, think of the fame which would come to the man who first describes CONGENITAL PNEUMOPERITONEUM (indigenous, naturally, to Northern California).

One of the most fascinating recent public health stories is the preparation and conduct of the 1953 BOY SCOUT JAMBOREE in Orange County, California. The sanitary installations, food delivery and inspection, health examinations, swimming precautions, etc. are amazing. . . . Even more surprising than some of the usual Scout needs were those made necessary by 'camp followers'. Special toilet facilities had to be provided for 50,000 visitors, and they used portable chemical units (many of them borrowed from movie field-location equipment). . . . Another need was to prepare the surrounding towns for a huge influx of trailers, brought to the area by parents of Scouts. Extra sites had to be arranged, the local food supplies and service had to be checked, etc. etc. . . . 'Be Prepared' is correct!

Dougherty and Frank of Salt Lake City have isolated a blood factor ("X") which stimulates the production of LYMPHOCYTES. It counteracts the lencocyte-killing action of the adrenals, and produces resistant 'stress' lymphocytes. . . . Maybe one can find out the relationship of high lymphocytes and resistance to tuberculosis; which comes first, the chicken or the egg. Is a lymphocytosis the result of a healing situation, or will an artifically high lymphocyte count result in a tendency to heal?

TIME magazine reports that a New Jersey drug researcher announced 'cures' for four diseases with imaginary names newly-coined by him. They included Hemingway's Syndrome, gastroposis, and Gallardia. . . . He received requests for samples from 80 of the 1,000 doctors to whom he wrote. . . . (It didn't say how the drugs worked tho. Too soon to expect results, I suppose).

Have you an idea that GALLSTONES can be dissolved in vivo? If so, maybe you've confused them with kidney stones. . . . Reports of success with certain types of kidney stones have been made, but not so with gallstones. NOT so. . . . There is no safe effective method, by mouth or otherwise, for dissolving gallstones. . . . This assurance comes from Dr. Walter Alvarez, Emeritus Consultant to the Mayo Clinic, and ACTIVE, INVOLUNTARY consultant to this column.

There are several reasons why we often quote DR. ALVAREZ. He is, for instance, good. He is also indubitably prolific. . . . His chores (which I'm sure he enjoys) include a daily syndicated newspaper column; editorship of 'Modern Medicine'; an editorship of a geriatric journal; et al. . . . (The word 'geriatrics' has come to be identified with 'practice among senior citizens', and this Osler does not intend to replace it with the cumbersome word 'gerontology', even tho it has a slightly different meaning.

Dr. Alvarez is also the author of 'Danger Signals', a book for the general public. It contains a glossary of medical terms, with an explanation for laymen, and describes the tip-offs to disturbances of various organs and systems.

Electrocardiographer, certified, desires to interpret EKG's by mail. Replies by return mail day of receipt. $1.25 per interpretation.

Write %
ARIZONA MEDICINE JOURNAL
424 Heard Bldg., 112 N. Central
Phoenix, Arizona

BOOK REVIEWS

RESPIRATORY DISEASES AND ALLERGY, New Method of Approach, by Josef S. Smul, M.D., published by Medical Library Company, New York, 1953, $2.75.

This is a highly interesting little book of only 72 pages of reading material written by a man who believes and has the boldness to declare that some twenty-odd respiratory diseases have a common cause and yield to relatively simple and similar treatments. These diseases which include various types of sinusitis, rhinitis, bronchitis, he believes are due to allergy only and believes they should be considered as various syndromes of the one allergic disease which should be named 'respirallergy".

The last half of the book is devoted to other infectious diseases of the respiratory system and to neoplastic diseases of the respiratory system. This can be read in a short evening and I think would prove interesting to almost every physician whether or not he agrees with the author. R.L.F.

FOOL'S HAVEN
by
C. C. Cawley, Publishers, House of Edinboro, Boston, Massachusetts. $2.75

This is a book written with a purpose in mind, the purpose being to bring the public the tragedies occasionally seen when some person of religious belief is denied much needed medical care. It briefly is the story of a young girl who because of her and her mother's religious beliefs was denied medical care and died of a ruptured appendix with resultant peritonitis. It is told by her fiance. For a book of its kind one must admit that it is fairly well done but it is the humble opinion of this reviewer that Mr. Cawley would have gained more friends for his cause had he treated it from the viewpoint of Christian common sense and tolerance rather than from the viewpoint of an agnostic which leaves one with the feeling that Mr. Cawley sneers at religion in general. R.L.F.

PHEOCHROMOCYTOMA AND THE GENERAL PRACTITIONER
by
Joseph L. DeCourcy, M.D., and Cornelius B. DeCourcy, M.D. DeCourcy Clinic, Cincinnati 2, Ohio, Published 1952 by Barclay Newman.

In the last few years pheochomocytoma has become instead of a clinical rarity something which must be though of and reckoned with in all cases of hypertension and particularly paroxysmal hypertension. It is called the "great mimic" among hypertensive disorders. It is even more important in that, just as in cancer, an early diagnosis is essential to cure. This book is the most complete treatise on this important and interesting disease which this reviewer has seen. It is well organized, interestingly written and easily read. Its importance cannot be over-emphasized and it deserves a wide reading, not only among the general practitioners but among any physicians who have anything to do with hypertensive patients. R.L.F.

BONE MARROW ASPIRATION

"The use of bone marrow examination as a diagnostic aid has gained extensive recognition in the past years. In some hospitals a marrow aspiration is almost a routine procedure for the patient admitted for diagnostic study."

Thus opens a discussion on "The Clinical Use of Bone Marrow Aspiration; Its Limitations and Methods," by Huntington and Howard, of Wilmington, Del., in the Delaware State Medical Journal, January, 1953.

The bone marrow study is a procedure requiring experience and time, but can be carried out in any well equipped clinical laboratory. Hospitalization is not necessary. Routine indiscriminate use is decried, and careful hematological and clinical studies should be carried before decision is reached regarding the indications for bone marrow study. W.W.W.

Are You Insured?

For the medical practitioner, adequate insurance is a MUST. In this day of shrewd lawyers specializing in suits against doctors, of compensation minded juries, of a general public educated by propaganda to "get yours no matter who is hurt," it behooves doctors to look well to their insurance protection. Ordinary professional liability insurance is not enough and those who carry this frequently do not have sufficient coverage. If a judgment is granted to a plaintiff, usually the damages will be high, and the ordinary limits of $5,000 to $15,000 will not be sufficient protection. An article in two parts in the Rocky Mountain Medical Journal, January and February, 1953, by L. Allen Beck, C.P.C.U., of Denver, is a very excellent discussion on new risks, new types of insurance, and the steps to be taken to be certain that your insurance coverage is adequate. W.W.W.

Arizona Pharmaceutical Page

MEDICAL COSTS

A report published in MEDICAL ECONOMICS and prepared by the Department of Commerce, gave the following breakdown on expenditures by the average family in 1951, for medical care:

Doctor's services	$58.00
Hospitals	50.00
Drugs and Sundries	36.00
Dentists service	23.00
All other medical care	41.00

These figures total $208.00, the amount spent by the average family of approximately 3½ persons, during 1951.

Of interest is the following statement, recently released from Washington:

"DEATH VERSUS HEALTH: Each year Americans spend more after death comes than on health care in hospitals. We spend $700,000,000 a year with 25,000 funeral directors. There are a third as many mortuary colleges (24) as medical colleges (76). The casket manufacturers often charge many times the prices of surgical operations."

As you will note the "DEATH" figure averages out to approximately $153.00 per family, three-fourths as much as the total spent for the various "HEALTH" services.

You are being constantly besieged by your patients who are complaining of the higher and higher costs being charged for their well-being. We thought you would be interested in a comparison, such as we have outlined, to bring home to your patients how little they are actually spending for the most important phase of their lives.

We, in pharmacy, know that the medications we are dispensing today do carry a much higher price tag than those our customers received in past years but we also know that those same patients are recovering much faster from the illnesses they encounter with the ultimate cost to them, not only in money but also in loss of time, being reduced to a very great extent. You also know these facts. We have been explaining them to our customers when we have the opportunity, as we are always cognizant of that spector which keeps bobbing up from time to time "SOCIALIZED MEDICINE."

Doctor, you can wield a tremendous influence in the thinking of your patients. When you agree with them that that druggist down the street is robbing them, you are tending to hasten the day when that spector will materialize. That druggist is maintaining a service which must be paid for and his charges are never, to our knowledge, commensurate with the skill and services he offers. Conversely we find the average dispensing charge made on prescriptions to be between 25 and 50 cents over the actual selling price of the medication.

In many instances of the higher priced prescriptions, the pharmacist seldom adds a dispensing charge. In the case of compounded prescriptions he will charge a reasonable amount for the time he must spend in compounding it.

Should there be any doubt in your mind relative to prices being charged we would welcome your advice and counsel.

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY COMPANY

DWIGHT McCLURE GEORGE B. LITTLEFIELD W. J. WINGAR
Telephone ALpine 3-1185 407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative

617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.

228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.

333 N. 7th Ave. — Phoenix, Arizona

ALpine 3-5175

Woman's AUXILIARY

FALL BOARD MEETING

The Board of the Woman's Auxiliary to the Arizona Medical Association had its fall meeting at St. Joseph's Hospital, Phoenix, September 23, 1953. Since this article was requested to be more the impressions of a county president's first State Board Meeting and not a "blow by blow" description, I am free to digress at will!

The locale of the meeting could not have been more inspiring. All of Arizona is duly proud of the new St. Joseph's Hospital and pages could be written on it alone. But suffice it to say that both the delicious luncheon and the tour of the plant were greatly enjoyed by the board members. We are grateful to the hospital for making our meeting there possible.

Perhaps the biggest single impression I brought away from this meeting is of the importance of each auxiliary member in her own right. Being not only the impressions of a first board meeting, but also those of a new president and a comparatively new auxiliary member in the state's most newly organized county, this idea struck home. This year's program theme, "Know Your Community", is particularly applicable to those counties with Pinal Auxiliary's problems. Organization is our stickler — how to fuse a group which is so widely spread that even a meeting together presents major difficulties. But even semi-organized we are each one better equiped to serve our individual communities in those needs which are closest to us through our common role as "doctor's wife in the community."

Paradoxically, my other main impression was of the efficiency of the Auxiliary organization on the state level and what one can glimpse of the national level. I wish that each Auxiliary member in the state could attend a board meeting just to experience for herself the realization of the broad scope of activities and work being carried out by this, our own organization, of which each of us is an important and integral part. Fine progress is being made in many fields vitally concerned with the medical profession.

One of the most worthwhile projects is Nurse Recruitment. Plans are being made for organization of "Future Nurse's Clubs", showing of films, and the stressing of this year's theme, "Nursing, the Opportunity That Knocks Twice". Closely allied with this is our Student Nurse Loan Fund. Started in 1950, it has now loaned $3,800 to 15 girls. This is a real contribution to a real problem.

Another project vital to our interests is the Medical Education Fund. The national drive is $10,000,000. Last year Arizona contributed $150. It was pointed out that unless private enterprise is able to help the medical schools, the government would eventually be in control. Surely privately endowed colleges, universities, and medical schools are our biggest bulwark against the state controlled education which we all condemn.

The Legislation Committee is chiefly concerned this year with the Bricker Amendment, deduction from income of expenses for post graduate courses in advanced training, and tax deferment for retirement funds for self employed. These items affect the welfare of each of us.

Civil Defense, a subject we are becoming increasingly aware of, came in for a share of lively discussion. The question was raised as to how many of us as doctor's families actually had an adequate medical kit in our homes besides the usual band-aids and free samples. How many of us, if separated from our families during a crisis would have any pre-arranged plan of action? There is much work to be done in this field.

The other important committees, Program, Bulletin, Publicity, Public Relations, Today's Health, and Mental Health, all had interesting reports. But space grows short. In closing, I want to say that I left my first board meeting inspired to do all I can to help Pinal County Auxiliary become better organized as a unit of our State Auxiliary, and also to be a better individual representative of the Auxiliary in my own community contacts.

Mrs. H. Howard Holmes
Pinal County President
Eloy, Arizona

THE STUDENT NURSE LOAN FUND NEWS

This year the Student Nurse Loan Fund issued loans to girls coming from various parts of the State. Three girls received full loans and a fourth a partial loan. Due to increased expenses in Nursing Schools the amount of the loan was voted to be raised by the committee from $300.00 to a maximum of $400.00 if necessary.

Our first two students who enrolled in nursing school in 1950, graduated this summer. One girl was an honor student throughout her schooling and the records of both were such that they hold responsible positions in their respective locations.

The overall picture of the Student Nurse Loan Fund since its inception 1950 is as follows:

The total amount of money lent to 15 nurses is $3,800.00. Quick repayment has been shown by girls having taken partial loans to finish school. Two girls relinquishing their school of nursing for unforseen hazards such as marriage, promptly refunded the amount of their loans.

It is of interest to note that of the girls taking loans in Arizona, three came from Phoenix, five from Tucson, two from Prescott and one from each of the towns of Morenci, Miami, Kingman, Clifton, and Douglas. This shows a fair representation from all parts of the State. However, the Student Nurse Loan Fund Committee is anxious to interest all communities in this Fund.

The Woman's Auxiliary to the Arizona Medical Association is solicitous of more applications next Spring. The requirements for the loan are: The minimum of a grade B average in high school; a satisfactory medical record; ambition and integrity, and the need for the loan. The Loan Fund is a business proposition whereby a student may borrow money at no rate of interest, repayment of the loan at the rate of $12.50 a month, beginning six months after receiving the state license.

Nationally speaking the available figures, though incomplete, show that the Student Nurse Loan Funds sponsored by the various Auxiliaries are doing impressive work. This year 24 state granted 212 students loans, the total amount of money utilized throughout the United States in 1953 being $28,997.50. Auxiliary members in Arizona will be interested to know that the present phase of the nurse recruitment program was started when Mrs. Jesse D. Hamer was national president the year of 1946-1947. Mrs. Donald A. Polson Chairman Student Nurse Loan Fund Committee, Phoenix, Arizona

THE
BROWN SCHOOLS
For Exceptional Children

When it becomes necessary to prescribe Specialized Training for the exceptional child, may we be of service? The BROWN SCHOOLS' facilities include seven separate residence centers, suburban and ranch, for homogeneous grouping; complete recreational and academic programs; daily supervision by certified psychiatrists, psychologists, and Registered nurses. Our view book and full details sent on request.

BERT P. BROWN, President

PAUL L. WHITE, M.D., F.A.P.A.
Medical Director

ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

P. O. Box 4008-J
AUSTIN, TEXAS

RADIUM and RADIUM D+E
(Including Radium Applicators)
FOR ALL MEDICAL PURPOSES
Est. 1919
Quincy X-Ray and Radium Laboratories
(Owned and Directed by a Physician-Radiologist)
Harold Swanberg, B. S., M. D., Director
W. C. U. Bldg. Quincy, Illinois

Auralgan
In Acute Otitis Media
Rhinalgan
Safe Nasal Decongestant
O-tos-mo-san
In Fungus and Bacterial Ears
PAUL DESILETS
Representative
515 Ocean Ave. — Seal Beach, Calif.
DOHO CHEMICAL CORP.
100 Varick Street, New York 13, N. Y.
Telephone Worth 2-7707

FDA Has Reached No Conclusions On Boric Acid

The Food and Drug Administration is investigating the use of boric acid in infants' preparations, but has come to no conclusions, according to Associate Commissioner John L. Harvey. He said there was no plant to restrict distribution. Mr. Harvey said FDA was reappraising the subject of boric acid toxicity, and when all the facts are in, "hopes to be in a position to determine whether there is any necessity for label changes or other steps in order to adequately protect the public interest." He said information was being obtained from pediatricians and other medical practitioners, as well as from sources from which "special studies of a controlled and reliable character" may be obtained. A.M.A. Washington Letter

NOTICE

ALL CONTRIBUTORS OF ARIZONA MEDICINE SHOULD HAVE THEIR MATERIAL IN THE JOURNAL OFFICE NOT LATER THAN THE 10th OF THE MONTH PRIOR TO PUBLICATION IN ORDER TO HAVE ARIZONA MEDICINE REACH ITS READERS ON OR BEFORE THE 10th OF THE MONTH

Material arriving after that date will be published the following month.

COMPLETE OFFICE SUITE FOR DOCTOR

FURNISHED OR UNFURNISHED
PHONE CR 4-2481

31 W. Camelback Rd.
Phoenix, Arizona

MEDICAL - DENTAL OFFICE

Seven rooms — Parking area

718 N. Country Club Road

Tucson, Arizona

PHONE 4-1971 or 6-5937

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY BASAL METABOLISM

R. Lee Foster, M.D., Director John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

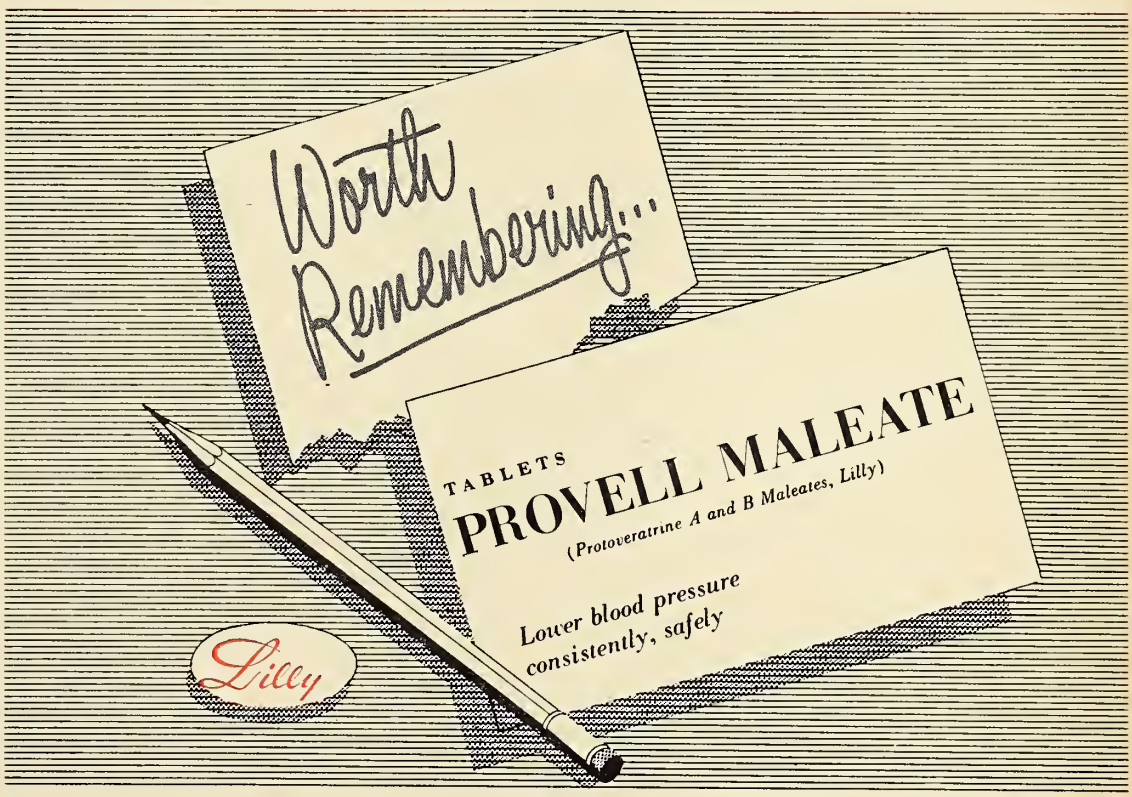
U. C. MEDICAL LIBRARY
DEC 22 1953
San Francisco, 22



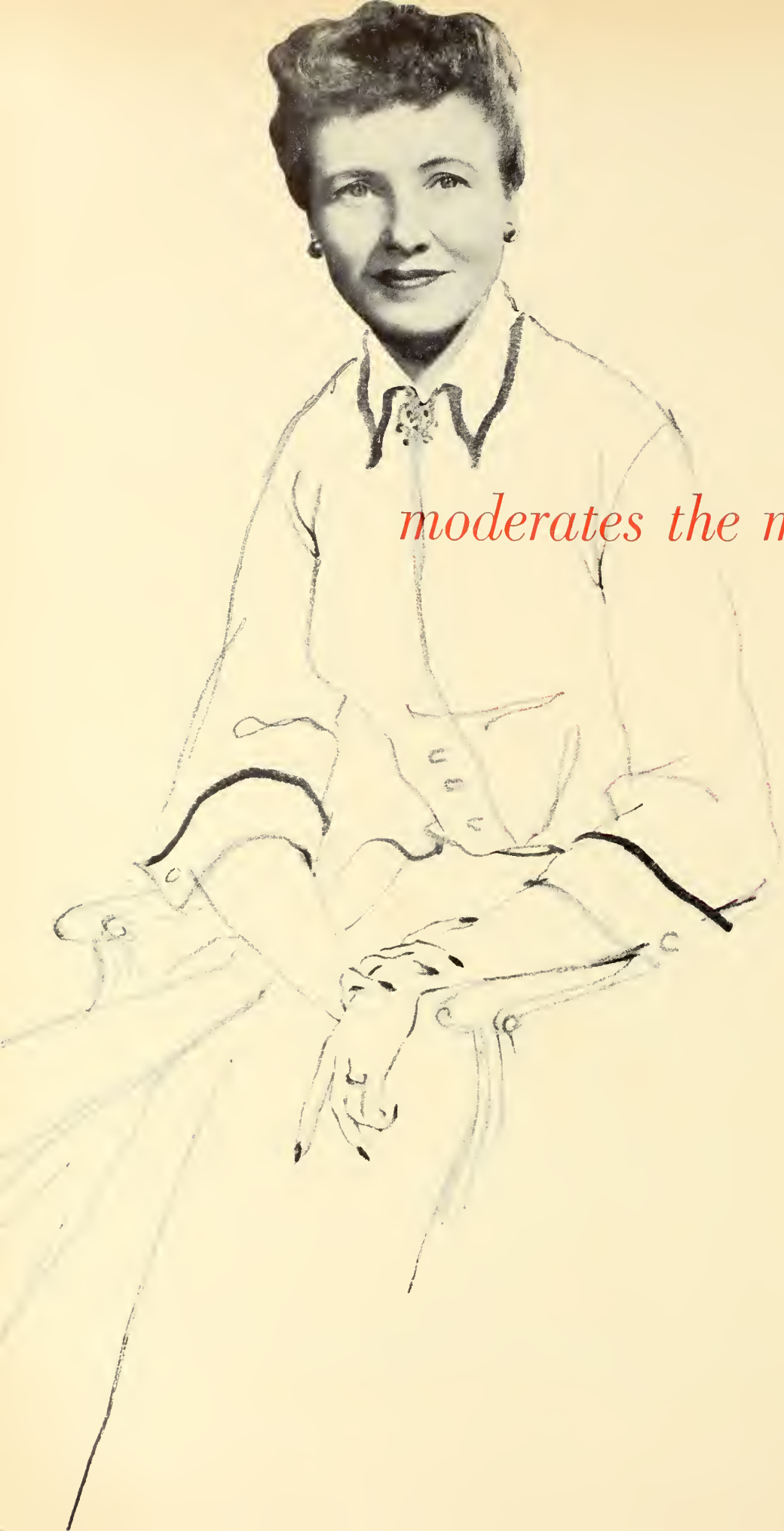
Arizona Medicine

Journal of ARIZONA MEDICAL ASSOCIATION

THE ARIZONA MEDICAL ASSOCIATION, INC. ORGANIZED 1892 INCORPORATED 1950 ARIZONA



Vol. 10, No. 12 • DECEMBER, 1953 • TABLE OF CONTENTS — PAGE V



moderates the menopaus

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 10, NO. 12 DECEMBER, 1953

TABLE OF CONTENTS

OFFICERS

ARIZONA MEDICAL DIRECTORY VI
WOMAN'S AUXILIARY DIRECTORY VI

ORIGINAL ARTICLES

RESERPINE AND THE ALSEROXYLON ALKALOIDS OF RAUWOLFIA SERPENTINA IN HYPERTENSION 419
Travis Winsor, M.D., Los Angeles, California

PRESENT CONCEPTS REGARDING GOITER 425
Herbert H. Davis, M.D., Omaha, Nebraska

THE NEPHROTIC SYNDROME (PART II OF A THREE PART ARTICLE) 429
Derrill B. Manley, M.D., Phoenix, Arizona

MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB 434
Drs. Leslie B. Smith and Frank J. Milloy, Phoenix, Arizona

PRESIDENT'S PAGE

A MERRY CHRISTMAS AND A HAPPY NEW YEAR 446
Edward Hayden, M.D., President, Arizona Medical Association, Inc.

EDITORIAL

HOW MUCH CAN ONE BELIEVE? 447

TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRS. 449
Guillermo Osler, M.D.

WITH OUR BOARD OF PHARMACY INSPECTOR 448
Arizona Pharmaceutical Association

SECOND ANNUAL CANCER SEMINAR 452

IN MEMORIAL — MARSHALL E. BURGESS, M.D. 454

THE PROFESSIONAL BOARD "Arizona's Mental Health Program" 455
Ernest A. Born, M.D., Prescott, Arizona

NEWS ITEM 458

HILL BURTON HOSPITAL CONSTRUCTION IN ARIZONA 458

ALCOHOLIC ANONYMOUS "FIFTH ANNUAL INTERNATIONAL MEETING" 458

WOMAN'S AUXILIARY

CIVIL DEFENSE 456
Mrs. Frank A. Shallenberger, Tucson, Arizona

NEWS ITEM 456
Mrs. George Enfield, Phoenix, Arizona

DIRECTORY

LABORATORIES XXI
SANATORIUM DIRECTORY XXII
DRUGGISTS DIRECTORY XXV
PHYSICIANS DIRECTORY XXVII

Published monthly by the Arizona Medical Association. Business office at 424 Heard Building, Phoenix, Arizona. Subscription $3.00 a year, single copy 25c. Entered as second class matter March 1, 1921, at Postoffice at Phoenix, Arizona, Act of March 3, 1879.

Directory

THE ARIZONA MEDICAL ASSOCIATION, INC.
Organized 1892 401 SECURITY BUILDING
234 NORTH CENTRAL AVE., PHOENIX, ARIZONA

OFFICERS AND COUNCIL

Edward M. Hayden, M.D. ..... President
1603 N. Tucson Boulevard, Tucson, Arizona
Oscar W. Thoeny, M.D. ..... President-Elect
1313 N. 2nd Street, Phoenix, Arizona
Harry E. Thompson, M.D. ..... Vice-President
433 N. Tucson, Boulevard, Tucson, Arizona
Dermont W. Melick, M.D. ..... Secretary
15 East Monroe, Phoenix, Arizona
Clarence E. Yount, Jr., M.D. ..... Treasurer
P. O. Box 1626, Prescott, Arizona
Lindsay E. Beaton, M.D. ..... Speaker of House
1650 N. Camphell Ave., Tucson, Arizona
Jesse D. Hamer, M.D. ..... Delegate to AMA
15 East Monroe, Phoenix, Arizona
Robert E. Hastings, M.D. ..... Alternate-Delegate to AMA
1014 N. Country Club Road, Tucson, Arizona
R. Lee Foster, M.D. ..... Editor-In-Chief
15 East Monroe, Phoenix, Arizona

DISTRICT COUNCILORS

David C. James, M.D. ..... Central District
926 E. McDowell Rd., Phoenix, Arizona
Kent H. Thayer, M.D. ..... Central District
1313 N. 2nd Street, Phoenix, Arizona
Leslie B. Smith, M.D. ..... Central District
926 East McDowell Road, Phoenix, Arizona
Herbert B. Potthoff, M.D. ..... Northeastern District
P. O. Box 128, Holbrook, Arizona
Ernest A. Born, M.D. ..... Northwestern District
107 North Cortez, Prescott, Arizona
Guy B. Atonna, M.D. ..... Southeastern District
447 10th Street, Douglas, Arizona
Wilkins R. Manning, M.D. ..... Southern District
620 N. Country Club Road, Tucson, Arizona
Royal W. Rudolph, M.D. ..... Southern District
1627 N. Tucson, Boulevard, Tucson, Arizona
Abe 1. Podolsky, M.D. ..... Southwestern District
1601 5th Avenue, Yuma, Arizona

COUNCILOR AT LARGE

Thomas H. Bate, M.D. ..... Past President
15 East Monroe, Phoenix, Arizona

BOARDS

PROFESSIONAL: Hugh C. Thompson, M. D., Tucson (Chairman); Ernest A. Born, M. D., Prescott; Edward H. Bregman, M. D., Phoenix; Orin J. Farness, M. D., Tucson; Lewis H. Howard, M. D., Tucson; Elvie B. Jolley, M. D., Bisbee; Joseph M. Kinkade, M. D., Tucson; Milton C. F. Semoff, M. D., Tucson; George A. Williamson, M. D., Phoenix.

PUBLIC RELATIONS: Leo J. Kent, M. D., Tucson (Chairman); Howard C. Lawrence, M. D., Phoenix (Vice Chairman); Lindsay E. Beaton, M. D., Tucson; Carlos C. Craig, M. D., Phoenix; Donald F. DeMarse, M. D., Holbrook; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon M. D., Nogales.

STANDING COMMITTEES

GRIEVANCE: Thomas H. Bate, M. D., Phoenix (Chairman); Lindsay E. Beaton, M. D., Tucson; Preston T. Brown, M. D., Phoenix; Arthur C. Carlson, M. D., Phoenix; Robert E. Hastings M. D., Tucson; Hilary D. Ketcherside, M. D., Phoenix; Harry T. Southworth, M. D., Prescott.

HISTORY & OBITUARIES: W. Warner Watkins, M. D., Phoenix (Historian); R. Lee Foster, M. D., Phoenix; Dermont W. Melick, M. D., Phoenix; Hal W. Rice, M. D., Tucson.

INDUSTRIAL RELATIONS: William B. McGrath, M. D., Phoenix, (Chairman); Carl H. Gans, M. D., Morenci; Ronald S. Haines, M. D., Phoenix; Zenas B. Noon, M. D., Nogales; John R. Schwartzmann, M. D., Tucson.

LEGISLATION: Reed D. Shupe, M. D., Phoenix (Chairman); Jesse D. Hamer, M. D., Phoenix (Vice Chairman); Carl W. Ahl, M. D., Douglas; William H. Bates, M. D., Cottonwood; Walter Brazie, M. D., Kingman; Ellis V. Browning, M. D., Springerville; Max Costin, M. D., Tucson; Donald F. Hill, M. D., Tucson; Bert E. Lambrecht, M. D., Miami; Stanton C. Lovre, M. D., Clifton; Wilkins R. Manning, M. D., Tucson; Robert M. Matts, M. D., Yuma; Zenas B. Noon, M. D., Nogales; Donald A. Polson, M. D., Phoenix; Wallace A. Reed, M. D., Phoenix; Leo Schnur, M. D., Grand Canyon; Leslie B. Smith, M. D., Phoenix; Noel G. Smith, M. D., Safford; Guss B. Steward, M. D., Coolidge; Kent H. Thayer, M. D., Phoenix; Harry E. Thompson, M. D., Tucson; Myron G. Wright, M. D., Winslow.

MEDICAL DEFENSE: Preston T. Brown, M. D., Phoenix (Chairman); Ernest A. Born, M. D., Prescott; Harold W. Kohl, M. D., Tucson.

MEDICAL ECONOMICS: Hilary D. Ketcherside, M. D., Phoenix (Chairman); Royal W. Rudolph, M. D., Tucson; Hugh C. Thompson, M. D., Tucson.

PUBLISHING: R. Lee Foster, M. D., Phoenix (Chairman); Carroll C. Creighton, M. D., Flagstaff; Donald E. Nelson, M. D., Safford; Darwin W. Neubauer, M. D., Tucson.

SCIENTIFIC ASSEMBLY: Oscar W. Thoeny, M. D., Phoenix (Chairman); Joseph Bank, M.D., Phoenix; David Engle, M.D., Tucson; Francis M. Findlay, M. D., Kingman; David C. James, M. D., Phoenix; Wilkins R. Manning, M. D., Tucson; Donald E. Nelson, M. D., Safford; William A. Phillips, M. D., Yuma; Herbert B. Potthoff, M. D., Holbrook.

Woman's Auxiliary

OFFICERS OF THE AUXILIARY TO THE ARIZONA MEDICAL ASSOCIATION — 1953 - 1954

President ..... Mrs. George S. Enfield
335 W. Cambridge Ave., Phoenix
President-Elect ..... Mrs. Brick P. Storts
3228 E. 5th Street, Tucson
1st Vice President (Organization) ..... Mrs. Roy Hewitt
130 Camino Miramonte, Tucson
2nd Vice President (Program) ..... Mrs. Charles S. Powell
698 Ninth Ave., Yuma
Treasurer ..... Mrs. R. Lee Foster
2215 N. 11th Ave., Phoenix
Recording Secretary ..... Mrs. Louis Hirsch
Rt. 6, Box 710, Tucson
Corresponding Secretary ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (1 year) ..... Mrs. T. C. Harper
175 S. Third Street, Globe
Director (1 year) ..... Mrs. William F. Schoffman
36 N. Country Club Dr., Phoenix
Director (2 year) ..... Mrs. Frederick W. Knight
Safford

STATE COMMITTEE CHAIRMEN 1953-1954

Bulletin ..... Mrs. Hiram Cochran
2716 E. 4th Street, Tucson
Chaplin ..... Mrs. James R. Moore
305 W. Granada, Phoenix
Civil Defense ..... Mrs. Frank A. Shallenherger
345 S. Eastbourne Dr., Tucson
Convention ..... Mrs. A. E. Cruthirds
60 E. Country Club Drive, Phoenix
Finance ..... Mrs. Paul S. Causey
38 W. Camelback Road, Phoenix
Historian ..... Mrs. Benjamin Herzberg
125 W. Rose Lane, Phoenix
Legislation ..... Mrs. C. L. Von Pohle
274 N. Arizona Ave., Chandler
Medical Education Fd. ..... Mrs. J. B. Tucker
Box 1042, Casa Grande
Nurse Recruitment ..... Mrs. Max Costin
2648 E. 4th Street, Tucson
Parliamentarian ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Publicity ..... Mrs. Ashton B. Taylor
46 E. Marlette Dr., Phoenix
Public Relations ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Revisions ..... Mrs. Jesse D. Hamer
1819 N. 11th Ave., Phoenix
Student Nurse Loan Fund ..... Mrs. Donald A. Polson
2163 W. Earll Dr., Phoenix
Todays Health ..... Mrs. James C. Soderstrom
Box 82, Whipple
Nominating Com. Chairman ..... Mrs. Royal W. Rudolph
3935 Miner, Tucson
Mental Health ..... Mrs. Delhert Secrist
35 Calle Clara Vista, Tucson

COUNTY PRESIDENTS AND OFFICERS 1953-1954

GILA COUNTY

President ..... Mrs. Ira E. Harris
Box 1296, Miami
Vice President ..... Mrs. Charles T. Collopy
Box 623, Miami
Secretary-Treasurer ..... Mrs. William E. Bishop
605 S. 3rd St., Globe

MARICOPA COUNTY

President ..... Mrs. Paul B. Jarrett
501 E. Pasadena, Phoenix
President-Elect ..... Mrs. Robert H. Cummings
5830 Arcadia Lane, Phoenix
1st Vice President ..... Mrs. C. Selby Mills
5821 N. 11th, Phoenix
2nd Vice President ..... Mrs. George A. Williamson
537 W. Rose Lane, Phoenix
Rec. Secretary ..... Mrs. Robert A. Price
335 W. Windsor Ave., Phoenix
Cor. Secretary ..... Mrs. Samuel H. Hale
Rt. 1, Box 382, Scottsdale
Treasurer ..... Mrs. Dwight H. Porter
5650 N. 12th, Phoenix

PIMA COUNTY

President ..... Mrs. Hugh C. Thompson
135 Palomar Dr., Tucson
President-Elect ..... Mrs. Joseph M. Kinkade
335 S. Country Club Rd., Tucson
1st Vice President ..... Mrs. Seymour 1. Shapiro
2410 E. Elm St., Tucson
2nd Vice President ..... Mrs. George A. Shetter
2733 E. Mahle St., Tucson
Rec. Secretary ..... Mrs. John K. Bennett
2325 E. Waverly St., Tucson
Cor. Secretary ..... Mrs. D. E. Engle
4012 E. Cooper, Tucson
Treasurer ..... Mrs. Richard K. Hausmann
2639 E. 8th St., Tucson

PINAL COUNTY

President ..... Mrs. Howard Holmes
Eloy
Vice President ..... Mrs. James T. O'Neil
Casa Grande
Sec-Treasurer ..... Mrs. Robert Z. Collings
Box 475, Casa Grande

YAVAPAI COUNTY

President ..... Mrs. Melvin W. Phillips
829 Flora Ave., Prescott
Vice President ..... Mrs. Earnest Geever
Whipple
Sec-Treasurer ..... Mrs. William A. Marlowe
Whipple

YUMA COUNTY

President ..... Mrs. Phillip G. Corliss
Somerton, Box 68
Vice President ..... Mrs. John J. Klohy
Ave. C, Yuma
Sec-Treasurer ..... Mrs. Robert M. Matts
Yuma

ARIZONA MEDICINE
Journal of Arizona Medical Association
VOL. 10, NO. 12 DECEMBER, 1953

Original ARTICLES

RESERPINE AND THE ALSEROXYLON ALKALOIDS OF RAUWOLFIA SERPENTINA IN HYPERTENSION*

Travis Winsor, M.D.
Los Angeles, California

The purpose of the present report is to describe the use of two new hypotensive agents, reserpine** and the alseroxylon alkaloids of Rauwolfia serpentina***, for the medical management of essential hypertension and to discuss briefly some of the mechanisms which may be responsible for the elevation of blood pressure in this disease. A discussion of the possible mechanisms in the pathogenesis of hypertension is given to emphasize that essential hypertension is a syndrome in which many different factors play important parts and that, because of this, no single therapeutic agent known today is universally effective as a hypotensive agent. The drugs to be described, however, are effective in a sufficient number of patients with essential hypertension to make them valuable additions to the physician's armamentarium of hypotensive agents.

The etiology of essential hypertension in most patients is unknown, however, an increase in arteriolar tone is common to most. Arteriolar tone is controlled normally by humoral and neurogenic factors (Fig. 1), the former primarily from the kidney, adrenal, pituitary gland and liver, the latter from the central and sympathetic nervous systems. Ferris(1) has shown that it is possible to differentiate the humoral from the neurogenic type by means of the blood pressure response to tetra-ethyl-ammonium chloride, a ganglionic blocking agent.

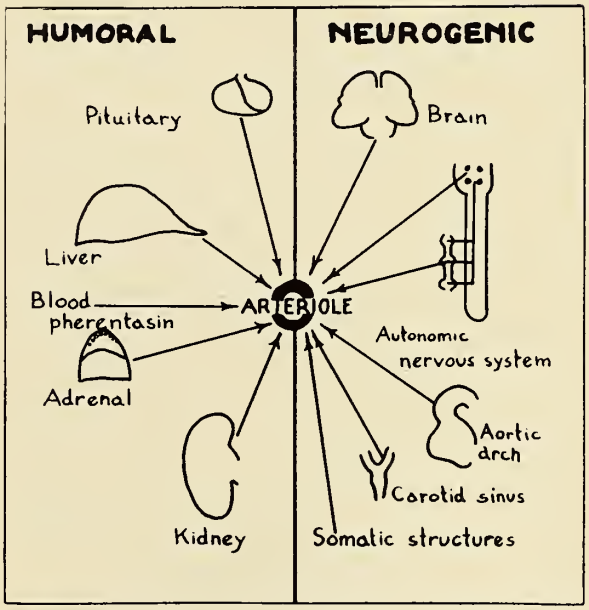


Fig. 1—Humoral and neurogenic factors controlling vasomotor tone.

Humoral factors controlling blood pressure: *Renal* control of arteriolar tone was described originally by Goldblatt(2) who demonstrated that renal ischemia resulted in increased systemic blood pressure (Fig. 2). It was shown later that renal ischemia liberated an enzyme, renin, which activated the alpha-globulin from the liver, hypertensinogen, to form angiotonin (also called hypertensin). Angiotonin raises blood pressure by acting directly on the arterioles in the presence of an intact adrenal gland(3). Another renal mechanism responsible for an elevated pressure is described by Shorr(4), who demonstrated two humoral fac-

*Presented in part at the Arizona State Medical Association Meeting, Tucson, April, 1953. These studies were aided in part by a grant from the Los Angeles Heart Association. Gratitude is expressed to Mrs. Angeline Smith for her technical assistance in these studies.
**Serpasil, Ciba
***Rauwiloid, Riker

tors which regulate capillary tone (Fig 3). These are a pressor substance, V.E.M. (vaso-excitor material) formed in the kidney and a depressor substance, V.D.M. (vaso-depressor material) formed chiefly in the liver but also in the spleen and skeletal muscles. V.D.M. is an iron-containing protein molecule called "ferritin". Under normal circumstances, V.E.M., and V.D.M. exist in dynamic equilibrium thereby regulating capillary tone. Although the liver forms V.D.M., it also is the source of its inactivation. Thus an increased capillary tone may result from increased V.E.M. formation, decreased V.D.M. formation, or an increased rate of V.D.M. inactivation. Certain derangements in the circulation, especially hypoxia, upset the normal equilibrium and result in alteration of blood pressure. *Adreno* cortical hypersecretion may be responsible for hypertension as it has been shown that excessive secretion of steroid hormones by the zona glomerulosa causes salt and water retention and nephrosclerosis(5). Nephrosclerosis in turn produces decreased pulsations of renal arteries and renal ischemia which leads to hypertension (Fig. 4). Page(3) has shown that the Goldblatt renal mechanism producing hypertension occurs only in the presence of intact adrenal glands. He suggests that angiotonin favors sodium loss and that sodium loss stimulates the adrenal cortex to produce sodium retention and nephrosclerosis. Thus a vicious circle is established. The liver plays a part in the regulation of arteriolar tone as shown by the studies of Davis and Tanturi(6) who lowered blood pressure by producing hypoxia of the liver. They have postulated that the hypotension resulted from either failure of the *liver* to inactivate V.D.M. or failure to produce hypertensinogen. *Pherentesin,* a long-acting non-protein pressor amine described by Olsen and Schroeder(7) and found in the arterial blood of patients with hypertension may be important in the etiology of essential hypertension (Fig. 1) by increasing arteriolar tone.

Neurogenic types of hypertension which involve the nervous system and not the endocrine organs are usually transient in nature and therefore often are not immediate medical problems. Pure neurogenic hypertension ocrurs probably as a transient pressor reaction following transient stimulation of nerves. If the stimulus is sufficiently strong or prolonged, a mixed neurohumoral type of hypertension may

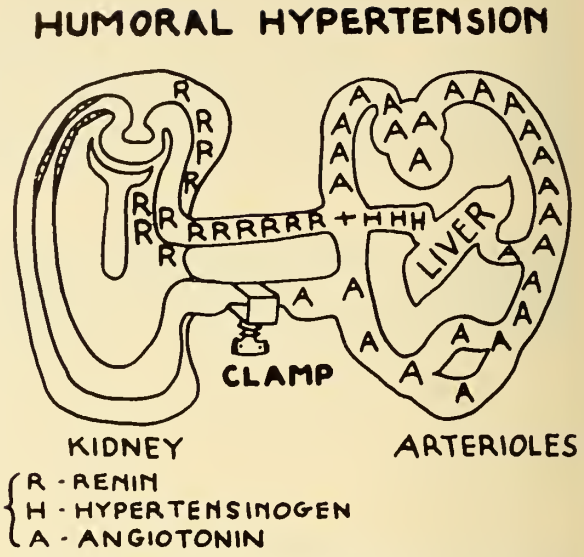


Fig. 2—Humoral type of hypertension results when renal ischemia occurs. Renin activates hypertensinogen to form angiotonin which results in hypertension in the presence of normal adrenal activity.

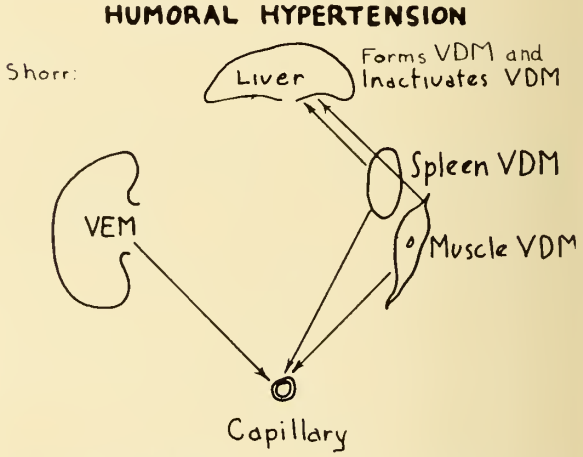


Fig. 3—V. E. M. and V. D. M. control capillary tone and regulate blood pressure.

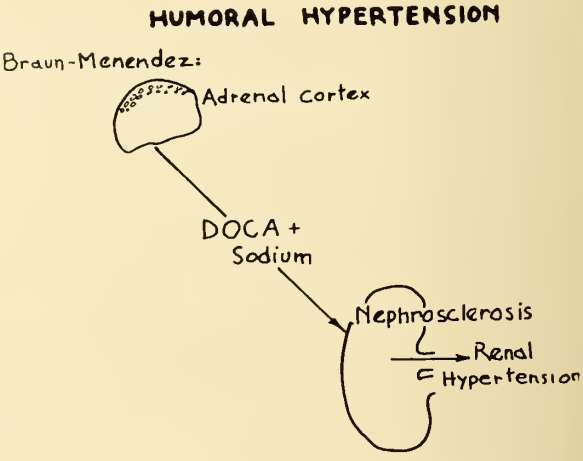


Fig. 4—Adrenal cortical hyperfunction especially in the presence of excess sodium results in nephrosclerosis and hypertension.

result (Fig 5). Nickerson(8) has stated that neurogenic transient hypertension often precedes fixed hypertension. This is borne out by the finding of Hines(9) who has shown a higher incidence of fixed hypertension among hyperreactors to the cold pressor test than in a control group of normal reactors.

Neurohumoral hypertension has been produced by Taylor, Page and Corcoran(10) by means of cross-circulation experiments in dogs. They have shown that upon stimulating the afferent fibers of the vagus and sciatic nerves a *cerebral vasopressor substance* is liberated which is distinct from epinephrine, nor-epinephrine, renin, pitressin, and angiotonin (Fig. 5) and is inhibited by hydrazinophthalazine. Selye (11) has described another neurohumoral mechanism in which *stress* stimulates the pituitary to form ACTH (Fig. 6). This stimulates the adrenal cortex to produce corticosteroids which, in the presence of sodium and protein produce nephrosclerosis and hypertension. Still another neurohumoral mechanism regulating blood pressure is reflex in nature originating in the *carotid sinus, and aortic arch* and other receptor organs (Fig. 7)(12). This reflex acts as follows: The vasomotor center in the floor of the fourth ventricle produces constant pressor stimulation of the sympathetic nervous system resulting in increased arteriolar tone and an elevated blood pressure which distends the aorta, carotid sinus and other receptors. Distension of these structures stimulates afferent nerves which serve as check valves by inhibiting the vasomotor center and the pressure is lowered. Arteriosclerosis involving these receptor organs decreases their distensibility thereby producing less central inhibition and less effective lowering of pressure.

From a consideration of these and other mechanisms, it becomes evident that in many cases the elevation of pressure present in hypertension is due to multiple factors and the results of therapy in these cases, at least, will be better when more than one therapeutic agent is employed.

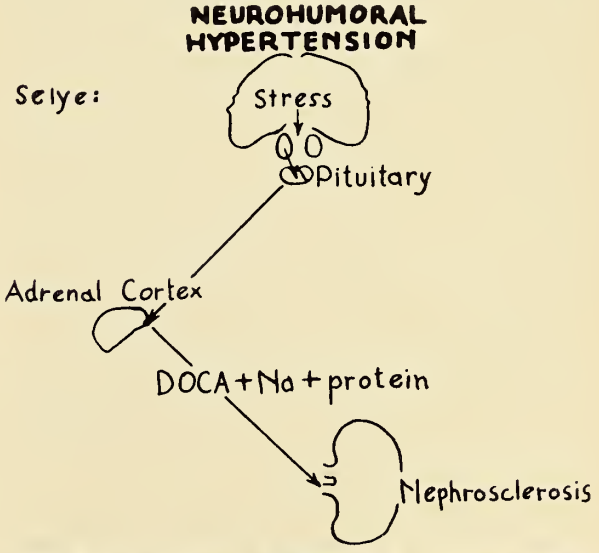


Fig. 6—Stress produces hypertension by way of pituitary, adrenal and renal pathways.

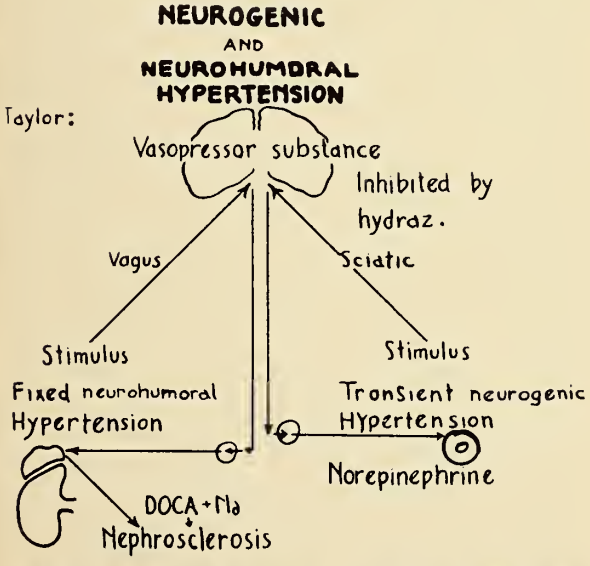


Fig. 5—On the right: Neurogenic transient hypertension occurs as a result of stimulating the afferent fibers of the vagus or sciatic nerves.. Nor-epinephrine is released which increases arteriolar tone. On the left: Neurohumoral fixed hypertension mediated through the adrenal gland and kidney causes permanent hypertension.

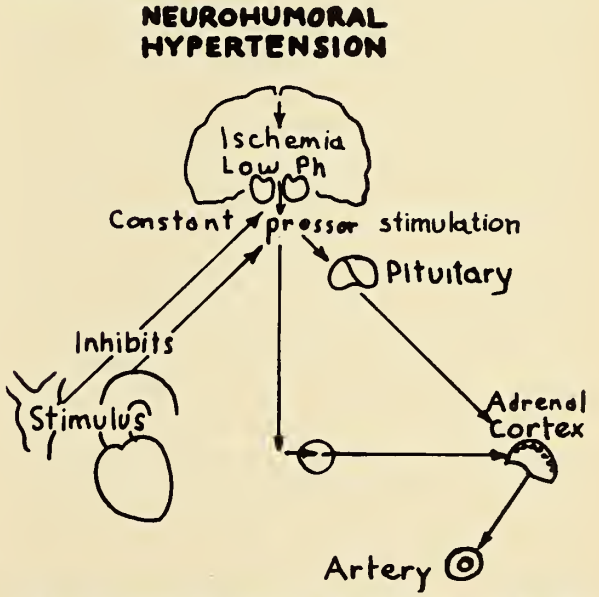


Fig. 7—Hypertension results if the aorta and carotid sinus cannot distend. This may occur with arteriosclerosis of these structures. In this case inhibition of the vasomotor center fails to occur and blood pressure increases.

METHODS AND MATERIALS

Fifty-six patients with essential hypertension were studied. Their ages ranged from 24 to 70 years. All were ambulatory out-patients who had been examined periodically for 2 to 4 years. All patients received either the single alkaloid reserpine or the alseroxlyon alkaloidal fraction of R. Serpentina. Sixteen were studied on reserpine and 40 on the alseroxylon fraction. Reserpine is a single alkaloid of known composition containing carbon, hydrogen, oxygen and nitrogen(13). The alseroxylon fraction is a mixture of at least nine alkaloids which is biologically standardized for its hypotensive, bradycardic and sedative effects and is chemically standardized by optical rotation, and melting, and freezing point determinations(14). A double-blind technique was employed in which neither the doctor nor the patient knew the agent which was administered. Special care was taken in recording blood pressures. The lowest of three readings was recorded and usually more than one examiner checked the readings. All pressures were taken with the patient in the sitting position after 20 minutes rest unless stated otherwise. The values shown in the accompanying charts represent the blood pressures after a minimum of 8 weeks on each drug.

RESULTS

The effects of reserpine on the blood pressure and pulse rate of 16 patients is shown in Table I. The patients ranged in age from 24 to 68 years. Sixty-nine per cent were males. The Keith-Wagener classification ranged from I to III. The dose employed was from 0.1 to 1.0 mg. with an average of 0.54 mg. given usually in a single dose before bed. Before therapy, the average blood pressure was 181.6/111.6 mm. Hg. and the average pulse rate 76.2 beats per minute. After eight weeks of continuous medication, the average fall in systolic pressure was 24 mm. (13.2%) and the diastolic pressure 18.1 mm. (16.2%) with an average fall in pulse rate of eight beats (10.5%). Side-effects occurred in certain patients receiving 0.5 mg. daily or more. The most common side-effect was lethargy which occurred usually in the morning and was improved with additional coffee or dextroamphetamine in small doses. Aching in the arms or legs, nasal obstruction with or without rhinorrhea, diarrhea, dizziness, dreams and dyspnea at rest occurred with the larger doses but were not encountered when therapeutic doses were administered. Five of these patients were given the drug continually for three months and in no instance did resistance to the drug develop. The time to reach the lowest blood pressure after initiating therapy was studied in 10 patients who received from 0.25 to 0.5 mg. daily. Fifty percent of the patients showed the greatest fall of pressure after two weeks, 30% in three weeks and 20% in a longer period of time. The length of time for the blood pressure to return to control levels after stopping the drug was studied in 10 patients. Fifty per cent of the patients showed a return to control levels in 2.5 weeks, 30% in 3.5 weeks and 20% returned in a longer period of time. The effect of the standing position on the blood pressure and pulse rate was studied in five patients receiving from 0.25 to 0.5 mg. daily for two months. The blood pressure and pulse rate were recorded in the supine and standing positions and the per cent change recorded. Before the drug the average systolic pressure fell 14.0% and after the drug it fell 14.1%. Before the drug the average fall in diastolic pressure was 2.8% with 2.0% after medication. Before the drug the pulse rate increased 7.3% but after 2.6% Thus it is evident that reserpine in the doses employed did not produce postural hypotension, however the postural increase in pulse rate seen before the drug was inhibited.

TABLE 1

				Control			Reserpine		Differences		
Pt. #	Age	Sex	Keith Wagener	Blood Pressure	Pulse Rate	Dose mg. /24 hr	Blood Pressure	Pulse Rate	Blood Pressure S	Blood Pressure D	Pulse Rate
39	58	M	III	182/100	82	0.10	158/90	60	-24	-10	-22
19	38	M	II	160/110	75	0.10	132/100	68	28	-10	-7
1	28	M	II	150/110	100	0.25	138/102	100	-12	-8	0
25	65	F	II	184/110	64	0.25	180/100	68	-4	-10	/4
49	60	F	II	210/110	84	0.50	150/80	84	-60	-30	0
33	47	M	II	152/90	88	0.50	138/80	78	-14	-10	-10
50	67	F	II	170/90	75	0.50	150/80	84	-20	-10	/9
7	54	F	II	184/120	84	0.50	142/92	60	-42	-28	-24
5	64	M	II	218/136	84	0.50	200/110	60	-18	-26	-24
14	68	M	II	164/112	72	0.50	130/90	54	-34	-32	-18
10	57	F	I	192/126	62	0.50	170/104	66	-22	-22	/4
16	42	M	I	190/120	80	0.50	165/90	68	-25	-30	-12
51	24	M	II	174/100	68	1.00	138/80	66	-36	-20	-2
3	60	M	II	195/102	54	1.00	180/100	52	-15	-2	-2
4	60	M	III	200/130	64	1.00	200/110	60	0	-20	-4
41	52	M	II	180/120	84	1.00	150/98	64	-30	-22	-20
Mean	52.7			181.6/111.6	76.2	0.54	157.5/96.	68.2	-24	-18	-8
Min.	24			150/90	54	0.10	130/80	52	0	-2	0
Max.	68			218/136	100	1.00	200/110	100	-60	-32	-24
Percent decrease from mean blood pressure and pulse rate									-13.2	-16.2	-10.5

S - Systolic
D - Diastolic

Table 1—Reserpine produced a significant fall in blood pressure and pulse rate with the doses employd.

The effect of the alseroxylon fraction on blood pressure and pulse rate of 40 patients was studied (Table II). The ages ranged from 24 to 70 and 53% were males. The Keith-Wagener classifications was from I to IV. The dose of the drug varied from 2.0 to 8.0 mg. in 24

TABLE II

Pt. #	Age	Sex	Keith Wagener	Control Blood Pressure	Control Pulse Rate	Alseroxylon Alkaloids Dose mg./24 hr.	Alseroxylon Alkaloids Blood Pressure	Alseroxylon Alkaloids Pulse Rate	Differences Blood Pressure S	Differences Blood Pressure D	Differences Pulse Rate
22	65	F	III	250/108	88	2.0	180/100	80	-70	-8	-8
26	63	M	II	190/110	72	2.0	160/110	68	-30	0	-4
31	42	M	I	140/110	95	2.0	134/90	72	-6	-20	-23
33	47	M	II	170/100	78	2.0	142/92	80	-28	-8	+2
40	50	M	II	220/130	100	2.0	220/120	70	0	-10	-30
9	59	M	II	180/120	80	2.0	172/112	72	-8	-8	-8
18	55	M	II	155/100	90	4.0	160/110	88	+5	+10	-2
8	48	F	II	205/130	60	4.0	162/110	52	-43	-20	-8
10	57	F	I	192/126	62	4.0	160/102	60	-32	-24	-2
14	60	F	II	240/140	86	4.0	160/100	76	-80	-40	-10
15	53	M	III	180/120	60	4.0	150/110	63	-30	-10	+3
16	43	M	I	210/105	100	4.0	190/120	80	+20	+15	-20
17	63	F	II	160/98	72	4.0	138/80	64	-22	-18	-8
1	30	M	II	150/100	100	4.0	120/90	82	-30	-10	-18
19	36	M	II	170/110	80	4.0	130/100	72	-40	-10	-8
23	48	F	II	200/108	92	4.0	150/90	88	-50	-18	-4
27	68	M	II	160/90	72	4.0	140/90	68	-20	0	-4
28	24	M	I	145/98	84	4.0	142/90	80	-3	-8	-4
30	70	F	III	200/120	88	4.0	176/84	64	-24	-36	-24
32	68	F	III	214/112	100	4.0	170/100	76	-44	-12	-24
35	57	F	II	210/130	78	4.0	150/100	72	-60	-30	-6
37	58	M	II	220/120	75	4.0	210/105	68	-10	-15	-7
41	58	M	II	192/120	86	4.0	190/110	70	-2	-10	-16
42	50	F	II	192/120	76	4.0	134/82	52	-58	-32	-24
25	65	F	II	248/138	80	4.0	176/100	68	-72	-38	-12
45	40	F	I	160/100	90	4.0	138/88	78	-22	-12	-12
2	38	F	II	160/120	90	4.0	150/110	84	-18	-10	-6
3	64	M	II	190/100	54	4.0	190/100	50	0	0	-4
11	53	F	II	220/90	80	4.0	200/100	62	-20	+10	-18
47	65	M	II	208/110	70	4.0	150/90	68	-58	-20	-2
12	55	F	II	248/150	74	8.0	240/140	68	-8	-10	-6
13	60	F	II	184/106	96	8.0	195/110	68	+11	+4	-28
21	26	F	IV	270/190	100	8.0	130/105	80	-140	-85	-20
29	67	M	II	230/112	90	8.0	160/100	64	-70	-12	-26
38	47	M	III	220/130	65	8.0	190/140	60	-30	+10	-5
39	58	M	III	190/110	80	8.0	180/90	64	-10	+20	-16
7	54	F	II	184/120	84	8.0	170/90	64	-14	-30	-20
36	42	F	III	250/160	100	8.0	230/140	96	-20	-20	-4
6	63	M	III	230/120	74	8.0	190/100	60	-40	-20	-14
4	57	M	III	180/120	64	8.0	184/130	60	+4	+10	-4
Mean	53.3			197.9/117.5	81.6	4.7	167.8/103.3	70.2	-27.6	-14.1	-11.3
Min.	24			140/90	54	2	120/80	50	0	0	2
Max.	70			270/190	100	8	240/140	88	-80	-85	-30
Percent decrease from mean blood pressure and pulse rate									-13.9	-12.0	-13.8

P - Pulse
S - Systolic
D - Diastolic

Table II—The alseroxylon alkaloids produced a significant fall in blood pressure and pulse rate with the doses employed.

TABLE III

Pt. #	Control Blood Pressure	Control Pulse Rate	Reserpine Dose mg./24 hr.	Reserpine Blood Pressure	Reserpine Pulse Rate	Differences Blood Pressure S	Differences Blood Pressure D	Differences Pulse Rate	Alseroxylon Alkaloids Dose mg./24 hr.	Alseroxylon Alkaloids Blood Pressure	Alseroxylon Alkaloids Pulse Rate	Differences Blood Pressure S	Differences Blood Pressure D	Differences Pulse Rate
39	182/100	82	0.10	158/90	60	-24	+10	-12	4	150/80	70	-32	-20	-12
50	170/90	75	0.50	150/80	84	-20	+10	+9	2	134/90	75	-36	0	0
49	210/110	84	0.50	150/80	84	-60	-30	0	4	162/88	76	-48	-22	-8
1	150/110	100	0.25	138/102	100	-12	-8	0	2	134/86	92	-16	+14	-8
16	190/120	80	0.50	165/90	68	-25	-30	-12	4	158/100	80	-32	-20	0
19	160/110	75	0.10	132/100	66	-28	-10	-7	4	128/90	68	-32	-20	-7
4	200/130	64	1.00	200/110	60	0	-20	-4	8	190/130	56	-10	0	-8
3	195/102	54	1.00	180/100	52	+15	-2	-2	8	190/100	50	-5	-2	-4
Mean	182.1/109.0	76.7	0.49	158.1/94.0	72.0	-23.0	-15.0	-3.5	4.5	155.9/96.8	70.8	-26.4	-12.2	-5.9
Min.	150/90	54	0.10	132/80	52	0	-2	0	2	128/80	50	-5	0	0
Max.	210/130	100	1.00	200/110	100	-60	+30	-12	8	190/130	92	-48	-22	-12
Percent below control						-12.6	-13.7	-4.6				-14.5	-11.2	-7.7

P - Pulse
S - Systolic
D - Diastolic

Table III—The magnitude of the reduction of blood pressure with reserpine and the alseroxylon alkaloids was similar with the doses employed.

TABLE IV

Pt. #	Age	Sex	Control Blood Pressure	Control Pulse Rate	Hexamethonium Dose mg./24hr	Hexamethonium Blood Pressure	Hexamethonium Pulse Rate	Differences Blood Pressure S	Differences Blood Pressure D	Differences Pulse Rate	Alseroxylon Alkaloids Dose mg./24hr	Alseroxylon Alkaloids Blood Pressure	Alseroxylon Alkaloids Pulse Rate	Differences Blood Pressure S	Differences Blood Pressure D	Differences Pulse Rate
17	68	F	170/90	72	750	160/80	71	-10	-10	-1	2.0	140/70	65	-30	-20	-7
35	53	M	180/120	60	750	200/130	78	-20	+10	+18	4.0	120/90	62	-60	-30	+2
31	53	F	220/100	80	750	220/90	90	0	-10	+10	4.0	200/100	62	-20	0	-18
8	48	F	205/130	60	1250	155/120	78	-50	-10	+18	4.0	162/110	52	-43	-20	-8
6	61	M	230/110	72	750	200/80	72	-30	-30	0		195/85	68	-35	-25	-4
1	30	M	150/100	100	1500	130/102	105	-20	+2	+5	4.0	130/92	85	-20	-8	-15
19	36	M	170/110	80	1250	150/100	80	-20	-10	0	4.0	130/100	70	-40	-10	+10
22	65	F	250/108	88	1500	240/110	90	-10	+2	+2	2.0	180/100	80	-10	-8	-8
39	58	M	190/110	80	750	170/100	84	-20	-10	+4	8.0	180/90	64	-10	-20	-16
4	58	M	192/120	86	1000	200/120	88	+8	0	+2	4.0	190/110	70	-2	-10	-16
Mean	53.0		195.7/109.8	77.8	1025	182.5/103.2	83.6	-17.2	-6.8	+5.8	3.6	162.7/104.7	67.8	-24	-15.5	-10
Min.	30		150/90	60	750	130/80	71	0	0	0	2	120/70	52	-2	0	+2
Max.	68		250/130	100	1500	240/130	105	-50	-30	+18	8	200/110	85	-70	-30	-18
Percent deviation from control								-8.7	-6.1	+7.4				-12.3	-13.7	-12.8

P - Pulse
S - Systolic
D - Diastolic

Table IV—The alseroxylon alkaloids produced a greater reduction in blood pressure than did hexamethonium in the doses employed.

hours with an average of 4.7. The average duration of medication was two months. The average control blood pressure was 197.9/117.5 mm. Hg. and the pulse rate 81.6 beats per minute. The average fall in systolic pressure after medication was 27.6 mm. (13.9%) and the diastolic fall 14.1 mm. ((12.0%). The average decrease in pulse rate was 11.3 beats per minute (13.8%). Side effects were few but increased when more than 4 mg. was taken each 24 hours. Lethargy, nasal obstruction, diarrhea, aching arms and legs, dyspnoea at rest and dreams occurred with the larger doses in the order named.

A comparison of the hypotensive effects of reserpine and the alseroxylon fraction in the same individual was made in eight patients who tolerated both drugs well (Table III). The patients had been maintained on each of these agents until the lowest blood pressure had been reached. The average dose of reserpine was 0.49 mg. in 24 hours and of alseroxylon was 4.5 mg. in 24 hours. All patients tolerated both agents with no significant side-effects. Reserpine produced average decreases of systolic pressure, diastolic pressure and pulse rate of 12.6%, 13.7% and 4.6% respectively. The alseroxylon fraction produced an average fall of systolic pressure, diastolic pressure, and pulse rate of 14.5%, 11.2% and 7.7% respectively. Thus reserpine and the alseroxylon alkaloids decreased blood pressures approximately equal amounts. The pulse rate was somewhat lower with the latter.

A comparison of the hypotensive effects of hexamethonium* with the alseroxylon fraction was made in 10 patients (Table VI). The ages were from 30 to 68 years; 60% were males. The control blood pressure and pulse rate averaged 195.7/109.8 mm. Hg. and 77.8 beats per minute respectively. The average dose of hexamethonium was 1025 mg./24 hours and the average dose of alseroxylon was 3.6 mg./24 hours. Each agent was given for not less than two months. In those instances in which resistance to hexamethonium developed, the lowest pressure reach was entered on the table. The average fall of systolic and diastolic blood pressure after hexamethonium was 17.2 mm. (8.7%) and 6.6 mm. (6.1%) respectively while the average rise in pulse rate was 5.8 beats per minute (7.4%). These values may be compared with those obtained with the alserroxylon alkaloids in which the systolic and diastolic fall in pressure averaged 24.0 mm. Hg. (12.3%) and 15.1 mm. (13.7%) respectively and the average fall in pulse rate of 10 0 beats per minute (12.8%). Thus in the dosages em-

*Esomide—Ciba

ployed a greater hypotensive effect was obtained with the alseroxylon fraction than with hexamethonium. It is to be noted that relatively small, well-tolerated, doses of hexamethonium were employed.

The comparative hypotensive effects of hydrazinophthalazine* and the alseroxylon fraction were studied in eight patients whose ages ranged from 36 to 65 years (Table V). Sixty-two per cent were males. The average dose of hydrazinophthalazine was 109.3 mg. in 24 hours. When resistance developed to the drug, the lowest pressure reached with this agent was recorded. The average dose of alseroxylon was 4.0 mg. in 24 hours.

The average blood pressure and pulse rate before hydrazinophthalazine was 206.8/116.0 mm. Hg. with a pulse rate of 77.8 beats per minute. The average decrease in systolic and diastolic pressures after treatment were 23.7 mm. Hg. (11.4%) and 9.7 mm. Hg. (8.4%) respectively with an average increase in pulse rate of 5.1 beats per minute (6.5%). These values may be compared with those obtained with alseroxylon in which the average fall in pressure was 31.6 mm. Hg. (15.3%) and 14.1 mm. Hg. (12.1%), with an average fall in pulse rate of 11.8 beats per minute (15.2%). Thus the alseroxylon fraction proved to be more hypotensive in the doses employed than hydrazinophthalazine. It should be noted that relatively small, well-tolerated doses of hydrazinophthalazine were employed.

DISCUSSION

The results indicate that the single alkaloid, reserpine (0.1 to 1.0 mg. in 24 hours) and the alseroxylon alkaloids (2.0 to 8.0 mg. in 24 hours) produced satisfactory reductions in systolic and diastolic blood pressures of equal magnitude. The bradycardic effect was somewhat less with reserpine in all studies. This was a slight but consistent finding. The most satisfactory hypotensive results were obtained in young individuals who had tachycardia and labile blood pressures, whose pulse pressures were not persistently wide and whose blood pressure elevations were not of many years' duration. Satisfactory reductions in blood pressure and pulse rate were seen, however, in patients in whom these criteria were not met. The alseroxylon alkaloids were found to be more hypotensive than either hydrazinophthalazine or hexamethonium in the doses employed. The studies made it apparent, however, that large increases in the doses of the alseroxylon fraction beyond the therapeutic level did not produce a progressively greater fall in blood pressure as occurred usually with hexamethonium and hydrazinophthalazine. The dose of reserpine was more critical becase of the increased potency of the drug. The general plan

TABLE V

			Control		Hydrazinophthalazine*			Differences			Alseroxylon Alkaloids			Differences		
Pt. #	Age	Sex	Blood Pressure	Pulse Rate	Dose mg/24hr	Blood Pressure	Pulse Rate	Blood Pressure S	Blood Pressure D	Pulse Rate	Dose mg/24hr	Blood Pressure	Pulse Rate	Blood Pressure S	Blood Pressure D	Pulse Rate
15	53	M	180/120	60	75	190/130	75	/10	/10	/15	4.0	120/90	62	-60	-30	/2
11	53	F	220/100	80	75	200/90	86	-20	-10	/6	4.0	200/100	62	-20	0	-18
8	48	F	205/130	60	200	160/108	72	-45	-22	/12	4.0	162/110	52	-43	-20	-8
19	36	M	170/110	80	100	160/112	78	-10	/2	-2	4.0	130/100	70	-40	-10	-10
22	65	F	250/108	88	50	210/90	88	-40	-18	0	2.0	180/100	80	-70	-8	-8
37	58	M	220/120	75	150	190/110	80	-30	-10	/5	4.0	210/105	68	-10	-15	-7
39	58	M	190/110	80	150	155/90	85	-35	-20	/5	8.0	180/90	64	-10	-20	-16
40	50	M	220/130	100	75	200/120	100	-20	-10	0	2.0	220/120	70	0	-10	-30
Mean	52.6		206.8/116.0	77.8	109.3	183 1/106.2	83	-23.7	-9.7	+5.1	4.0	175.2/101.8	66	-31.6	-14.1	-11.8
Min	36		170/100	60	50	155/90	72	/10	/10	-2	2.0	120/90	52	0	0	/2
Max	65		250/130	100	200	200/130	100	-45	-22	/15	8.0	220/120	80	-70	-30	-30
Percent Deviation from control								-11.4	-8.4	+6.5				-15.3	-12.1	-15.2

S - Systolic
D - Diastolic

* Hydrazinophthalazine, Apresoline, Ciba

Table V—The alseroxylon alkaloids produced a greater reduction in blood pressure than did hydrazinophthalazine in the doses employed.

of therapy was to produce maximum hypotensive effects with either reserpine or alseroxylon and then add hydrazinophthalazine, hexamethonium or both in order to produce maximum lowering of pressure. Wilkins(15) has shown a potentiating action between R. Serpentina and hydrazinophthalazine and other agents. The tolerated dose of reserpine in most patients was from 0.1 to 0.5 mg. daily and of alseroxylon from 2 to 6 mg. daily.

The mode of action of R. Serpentina is known in part. Reserpine and the alseroxylon alkaloids both act centrally, and this would be effective in neurogenic hypertension (Fig. 1). Certain manifestations of a central action are observed in man and animals(14). A sedative effect is common and, in the rabbit, there is central disturbance of the body temperature regulating mechanism with large doses of the drug(13). It is not known at this time if R. Serpentina inhibits the cerebral vasopressor substance of Taylor, Page and Corcoran (Fig. 5) or if its action is on central synaptic junctions or elsewhere in the brain. These alkaloids from R. Serpentina suppress hypertension produced by electrical stimulation of the afferent vagus, afferent sciatic nerve (Fig. 5) and that resulting from lowering of pressure in the carotid sinus (Fig. 7).(13, 14). These agents do not have a direct vasodilating effect on peripheral arteries such as occurs with benzyl-imidazoline*(13), do not inhibit or re-

*Apresdine—Ciba

*Priscoline—Ciba

move the hypertensive effects of epinephrine or norepinephrine such as occurs with methylimidazoline*(13, 14), do not block autonomic ganglia as does hexamethonium(13, 14), do not stimulate the parasympathetic nervous system to produce vasodilatation as with acetylbetamethyl choline(13) and do not stimulate the cartoid sinus and other peripheral receptor organs, such as occurs with protoveratrine(16, 17, 18,) to inhibit the vasomotor center. Thus the action of R. Serpentina, in certain respects resembles the action of hydrazinophthalazine (10), and the hydrogenated alkaloids of ergot (19). From the theoretical point of view, it would seem that R. Serpentina would be effective in neurogenic and neurohumoral types of hypertension but not in the pure humoral type of cases. Better results can be expected from a combination of reserpine or alseroxylon with other agents, such as hydrazinophthalazine(15), acting at least in part through humoral mechanisms, than from the alkaloids alone.

SUMMARY

Reserpine, an alkaloid of R. Serpentina, and the alseroxylon alkaloidal fraction of R. Serpentina are effective hypotensive agents for the treatment of neurogenic and neurohumoral hypertension. They may be used alone or in combination with certain other known hypotensive agents.

*Regitine—Ciba

REFERENCES

1. Ferris, E. B., Reiser, M. F., Stead, W. W. and Brust, A. A., Jr.: Clinical and Physiological Observations of Interrelated Mechanisms in Arterial Hypertension Tr. A. Am. Phys. 61:97, 1948.
2. Goldblatt, H.: The Renal Origin of Hypertension (Monograph in American Lectures in Pathology) Springfield, Ill. C. C. Thomas, 1949.
3. Page, I. H. and Lewis, L. A.: Arterial Pressure and Serum Protein Patterns in Adrenalectomized Hypertensive and Adrenalectomized Normotensive Dogs. Am. J. Physiol. 164:61, January, 1951.
4. Shorr, E., Zweifach, B. W. and Furchgott, R. F., Baez, S.: Hepatorenal Factors in Experimental Hyptertension. Trans. of First Conference on Factors Regulating Blood Pressure. Josiah Macy, Jr. Foundation. New York, 1937.
5. Braun-Menendez, E. and Martinez, C.: Major Frecuencia de hipertension por perinefritis o desoxicorticosterona en ratos diabetics. Rev. Soc. Argent. de biol. 25:162, 1949.
6. Davis, L. and Tanturi, C. A.: Liver as a Factor in Experimental Renal Hypertension A.M.A. Arch. Surg. 62:325, March, 1951.
7. Olsen, N. and Schroeder, H.: Pressor Substances in Arterial Hypertension. 111 Chemical Studies on Pherentasin, J. Exper., Med. 92:561, December, 1950.
8. Nickerson, M.: Role of Sympathetic Blockade in the Therapy of Hypertension. Am. J. Med. 8:342, March, 1950.
9. Hines, E. A., Jr.: Range of Blood Pressure and Subsequent Hypertension. J.A.M.A. 115:271, 1940.
10. Taylor, R. D., Page, 1. H. and Corcoran, A. C.: A Hormonal Neurogenic Vasopressor Mechanism. A.M.A. Arch. Int. Med. 88:1, July, 1951.
11. Selye, H.: Textbook of Endocrinology, Ed. 2, Montreal, ACTA, Endocrinologica Inc., Medical Publisher, 1949.
12. Kezdi, P.: Sinoaortic Regulatory System. Role in Pathogenesis of Essential and Malignant Hypertension: Arch. of Int. Med. 91:1, 26-34, January, 1953.
13. Muller, J. M., Schlittler, E. and Bein, H. J.: Reserpin The Sedative Substance from R. Serpentina, Benth. Experentia, Vol. 8, p. 338, 1952.
14. Stutzman, J. W.: The Physiologic Effect of Rauwolfia Serpentina. Journal of Pharmacology and Experimental Therapeutics, to be published.
15. Wilkins, R. S. and Judson, W. E., The use of Rauwolfia Serpentina in Hypertensive Patients. New England J. Med. 248:48, 1953.
16. Aviado, D. M., Jr., Pontius, R. G., & Schmidt, C. F.: The Reflex Respiratory and Circulatory Actions of Veratridine on Pulmonary, Cardiac & Carotid Receptors. J. Pharm. & Exper. Therap. 97:420, 1949.
17. Gruzhit, C. C. & Moe, G. K.: Mechanism of Hypertensive Action of "Veriloid." Fed. Proc. 11:352, 1952.
18. Alexander, W. M., Richards, A. B., and Abreu, B. E.: Comparative Cardiovascular Activity of Three New Alkaloids of Veratrum Album. Fed. Proc. 12:297, 1953.
19. Rothlin, E.: The Pharmacology of the Natural and hydrogenated Alkaloids of Ergot. Bulletin de l'Academie Suisse des Sciences Medicales, 2, 4, 1946-47.

PRESENT CONCEPTS REGARDING GOITER

Herbert H. Davis, M.D.*
Omaha, Nebraska

Recent discoveries have caused greatly increased interest in the thyroid gland. In the past toxic goiter was diagnosed by symptoms and basal metabolic rate studies. Now the diagnosis may be much more accurate with the addition of protein-bound iodine of the blood and with radio-iodine tracer studies. In treatment, surgery is now being challenged by antithyroid drugs and by radio-iodine. There is still no unanimity of opinion regarding the treatment of various types of toxic goiters. I shall attempt to show you the reasons for each form of treatment in relation to thyroid physiology. Then you can use your judgement as to which form of treatment you wish to use on your patient.

*Presented at the Arizona Medical Association Meeting, April, 1953, Tucson, Arizona.

Goiters may be de to thyroid deficiency or to an excess of a thyroid stimulating hormone elaborated by the anterior lobe of the pituitary gland. The former is the case in colloid goiter and many nodular goiters. Excess thyroid stimulating hormone is probably the basis for Grave's disease, also called exophthalmic goiter or toxic diffuse goiter. The finest investigation regarding the role of iodine in the production of goiter was done by Marine and Kimball in 1921. Their study was on school children. In the control group of 2305, 495, or 21 per cent, developed goiter. By giving small doses of iodine to another group of 2,190 children, only five or 0.23 per cent developed goiter.

They then studied the use of iodine in the cure of goiter. As a control group of 1,048

children who had early goiter, with no treatment 145, or 14 per cent, decreased in size later. In a group of 1,182 children who were given iodine, 173, or 65 per cent, showed decrease in size. Iodine deficient goiters then may be produced by low iodine intake, use of thiocianate (cabbage), thiouracil-like compounds, sulfonamides, etc.

Thyroid stimulating hormones, formed by the anterior lobe of the pituitary, greatly stimulate the thyroid gland and increase the production and excretion into the blood of thyroxine, the active hormone of the thyroid. Thyroid stimulating hormone also at times will produce exophthalmos. Increase of this hormone may be produced by certain nervous stimulants from the higher brain centers, possibly by infections, and is inhibited by iodine or by thyroxine.

Physiology of Thyroid

The function of the thyroid gland is to selectively take up iodide from the circulation and to synthesize it to the active hormone thyroxine which it stores and excretes into the circulation as needed by the body. This hormone stimulates the metabolism of all the cells of the body. This process is not thoroughly understood. Based upon very extensive research which has been reviewed, the following impression of thyroid physiology may be given.

Iodine is quickly absorbed, mainly from the intestinal tract as iodide. It is taken mainly into the extracellular fluid. It is quickly selectively absorbed by the thyroid cells. A thyroid stimulating hormone (TSH) is secreted by the anterior pituitary. This hormone stimulates the thyroid cells to activity so they take up more iodide and more quickly synthesize thyroxine and excrete this hormone more rapidly into the circulation. Microscopically, this is shown by hyperplasia of the epithelium of the thyroid which becomes columnar in type with marked papillary infoldings to increase the amount of secreting epthelium. The rapid excretion of hormone results in decreased colloid in the follicles. The vascularity is greatly increased, and it resembles the thyroid of Grave's disease.

Excess dosages of iodine produce the opposite effect. The production of thyroid stimulating hormone (TSH) by the pituitary is inhibited so there is less activity of the thyroid. The cells become flat, the vascularity is decreased, and the follicles are full of colloid. The last finding is due to the fact that iodine inhibits the protease in the follicles so that the thyroid hormone is not liberated so well. The production of thyrotropic hormone is inhibited by the thyroid hormone. Thus the amount of thyroxine produced is regulated.

Tests for thyroid function to determine hyperthyroidism and hypothyroidism in order of their accuracy are as follows: (Table on bottom of page).

Unfortunately protein-bound iodine in the blood is a very difficult test to do and is not generally used. Radio-iodine uptake is much more commonly used. The somnolent metabolic rate may be extremely important to use, especially in extremely nervous individuals. We have not found the blood cholesterol too accurate.

Iodine

Iodine is necessary for the formation of the thyroid hormone thyroxine. It makes up to 65 per cent of the weight of thyroxine. Iodine is a trace mineral, which is a dietary essential in mammals. The total iodine of the body is about 50 milligrams, one-fifth of which is in the thyroid gland. Iodine is ingested in water, food and drugs. The optimal intake is only 100 to 200 micrograms per day. Lugol's solution (liquor iodi compositus) contains 6 mil-

TEST	NORMAL	HYPER	HYPO
Protein-bound iodine (PBI) of blood	3.5 - 8.0 mg. %	Over 8.0 mg. %	Under 3.5 mg. %
Radio-iodine (RAI) uptake in thyroid	15-35% in 24 hours 6% an hr. 1st few hrs.	Over 40% in 24 hours Over 6% an hour	Under 10% in 24 hours Under 3% an hour
RAI excretion in urine	40-70% in 24 hours	10-30% in 24 hours	60-90% in 24 hours
Somnolent metabolic rate (SMR)	−20-0%	Over 0%	Under −20%
Basal metabolic rate (BMR)	−10 to +10%	Over +10%	Under −10%
Blood cholesterol	170-210 mg. %	Under 150 mg. %	Oper 210 mg. %

ligrams of iodine per drop. In other words, one drop contains 30 to 60 times the daily requirement of iodine. One gram of iodized salt contains 200 micrograms of iodine, which is the daily requirement.

The selective absorption of iodine by the thyroid is not understood. Marine and Lenhart demonstrated in 1909 that, when the iodine concentration of the thyroid fell below 10 milligrams per cent, hyperplasia of the thyroid and goiter developed. This may be caused by deficient iodine intake. The same effect is produced by taking thiocyanate, which prevents the selective uptake of iodide by the thyroid and causes the thyroid to give up inorganic iodide.

Antithyroid Drugs

Antithyroid drugs, such as propylthiouracil, produce a block of the enzyme systems which are necessary for the iodinization of the thyroid proteins. A physiologically inactive thyroid protein results. The action is much slower than that of iodine because there is no noticeable improvement until the previously stored thyroxine is all used up. This may take several months, especially if the patient has had iodine previously so that there is a great deal of this hormone stored. However, there is no refractoriness and the patient adequately treated never has postoperative exacerbation or crisis as there is very little thyroid hormone left in the gland to be liberated. Propylthiouracil may be given in daily doses of 200 to 400 mg. as tablets three times a day, as absorption and excretion is very rapid. Tapazole, another antithyroid drug, has a dosage of 20 to 40 mg. per day. If these drugs are given in adequate dosage and for a long enough time, relief of toxic symptoms practically always occurs. Unfortunately, if the drug is discontinued even after using it for a year or more, recurrences occur in about half the cases. It also has the disadvantage that some cases are toxic to the drug so that they have to be discontinued. The advantages are that they are cheap, may be given by the patient's home physician, and the patient need not stop work and go to the hospital.

Radio-Iodine

Tracer doses of I^{131} may be used in the diagnosis of thyroid activity and of the activity of certain thyroid carcinoma metastases. A dose of 50 to 100 microcuries in water is given by mouth. It is rapidly and selectively taken up by the thyroid. The more active the thyroid is, the more active and in greater quantities it is taken up. This may be measured by a Geiger-Mueller counter placed over the thyroid. Normal uptake is 6 per cent or less per hour the first few hours and is 15 to 35 per cent in 24 hours. A check on this is to measure the excretion of radio-iodine in the urine for 24 hours. Of the radio-iodine not retained by the thyroid, 80 to 85 per cent is excreted in the urine. Therefore, the more toxic the goiter is the more radio-iodine there is in the thyroid and the less in the urine. The opposite, of course, occurs in hypothyroidism.

In therapeutic doses, radio-iodine causes destruction of secreting epithelium of the thyroid gland. It is highly effective in decreasing thyroxine production. Dosage is figured on the size of the thyroid and its activity. It is better to give a little too small a dose to start with than too large a one, which might produce a permanent hypothyroidism. If after two months the patient is still toxic, another smaller dose may be given. This may be done a third time or until the thyroid is made normal. An objection is the theoretic danger of its producing carcinoma in the thyroid fifteen, twenty, or twenty-five years in the future. No one can predict just now because it has not been used long enough. Because of that theoretic danger, many people do not advise its use before the age of 45 or 50. This problem will have to be re-evaluated in another ten or fifteen years.

Surgery

Surgery will cure 85 to 95 per cent of toxic thyroid goiter. The results vary according to the skill of the surgeon. It is now advisable to prepare all of these patients adequately with iodine or one of the antithyroid drugs until the patient is euthyroid. Then for a couple of weeks iodine is used to produce involution and decrease the hemorrhage at operation. When patients are euthyroid before thyroidectomy is done, proper surgery results in a mortality of 1 in 1,000. Thyroidectomy has another very great advantage, and that is in cases where there is any suspicion of carcinoma, as the tissue is removed so it can be examined microscopically. Thyroidectomy is the only effective treatment when there are pressure symptoms.

Carcinoma of the Thyroid

Carcinoma of the thyroid gland is commoner than used to be thought. The majority of these develop on the basis of nodular goiter, usually non-toxic, and most commonly in a single nodule. According to various statistics, it occurs in 10 to 25 per cent of single nodules in the thyroid. Because of that, these nodules should be prophylactically removed. Carcinoma of the thyroid is not uncommon in children. About one-third of all nodular goiters in children are carcinoma.

Signs of carcinoma in the thyroid are a single, non-toxic encapsulated nodule, any nodule of recent development especially in children, accelerated growth in a thyroid nodule, a hard indurated area developing in an adenoma, a lateral aberrant tumor which is usually a metastasis to a cervical lymph node, fixation to adjacent structures, persistent hoarseness due to recurrent laryngeal nerve involvement, pain, dyspnea, difficult deglutition, and metastases especially to lungs and bones.

Any suspicious lesion should be operated upon and a microscopic section obtained. A lobectomy or nearly total thyroidectomy should be performed with a radical neck dissection to remove involved cervical nodes on the side involved. If both lobes are involved, a neck dissection on the less involved side may be done seven to ten days later. Roentgen therapy should be used usually postoperatively. Later a tracer dose of RAI should be given in an attempt to locate recurrence and metastasis. If these have adequate pick-up of the RAI, it may be given in therapeutic doses.

Fortunately the commonest types of carcinoma are the papillary and the adenoma with blood vessel invasion, as these are relatively slow growing. Contrary to the usual rule of carcinoma, these slow-growing types are the commonest carcinomas of the thyroid in children. The very malignant solid carcinomas are more likely to occur in elderly people.

Exophthalmos

Usually exophthalmos disappears or is greatly decreased following treatment of toxic thyroid goiter and consequent reduction of thyroxine in the blood. However, there is an occasional case of malignant exophthalmos in which the opposite occurs. This latter type is probably due to excess thyroid stimulating hormone of the pituitary. Then when the inhibition of thyroxine is decreased there is more excess of the thyroid stimulating hormone produced and, therefore, an increase of the exophthalmos. This type should be feared if exophthalmos is out of proportion to the degree of hyperthyroidism. In this case it is better to use some temporary form of treatment such as iodine or antithyroid drug. If the exophthalmos gets worse, this should be stopped. If on the other hand the patient has been treated with radio-iodine or thyroidectomy, then he will have to have large doses of thyroid extract given to inhibit the pituitary. These cases should be carefully watched as blindness may develop. If this progresses in spite of thyroid extract, some sort of decompression operation of the orbit should be done.

The subject of treatment is very complex, and in many instances there are several forms of treatment which give fairly good results. In the following there is no attempt to be dogmatic, but I am merely indicating my personal preference of treatment in the various forms of goiter.

My own opinions are as follows:

I Non-toxic diffuse goiter (colloid or simple goiter)
  Iodine in small doses (iodized salt)

II Non-toxic nodular goiter
  1. Single nodule — hemithyroidectomy to exclude carcinoma
  2. Multiple nodules — thyroidectomy

III Toxic nodular goiter
  1. Small
    A. Thyroidectomy
    B. Radio-iodine
    C. Antithyroid drugs
  2. Large
    A. Thyroidectomy

IV Toxic diffuse goiter (Graves' disease — exophthalmic goiter)
  A. Radio-iodine or thyroidectomy
  B. Anthythyroid drugs

V Carcinoma
  Thyroidectomy with unilateral or bilateral radical neck dissection. Later roentgen therapy or radio-iodine if functioning.

(Part II of a Three Part Article)

THE NEPHROTIC SYNDROME

Derrill B. Manley, M.D.
Medical Center, 1313 N. 2nd Street
Phoenix, Arizona

(Continued from November Issue)

A comprehensive report on the treatment of nephrosis with concentrated human serum albumin has been given by Luetscher, Hall and Kremer (17). Thirteen patients with the characteristic features of the nephrotic syndrome were treated. These included no patients with marked hypertension or renal insufficiency. Maximal diuresis was noted to occur in the first few days of treatment, so that if diuresis failed to appear in 3 to 5 days, treatment was stopped. If a good diuresis appeared, treatment was continued until the weight became stationary and/or edema disappeared. A rapid increase in plasma volume was noted following each injection of concentrated albumin. The plasma concentration of albumin increased most strikingly in the first two days of treatment but fell quickly when treatment was stopped. The change in the total protein was less striking and frequently negligible. Plasma volume and albumin concentration usually declined to the control level within a week or two. No fundamental change in the course of the disease was apparent after albumin therapy.

Farr (18) has reported that in experimental nephritis in rats, high protein intakes may favor the development of a chronic progressive fatal nephritis. Maximum intake of protein did not promote maximum assimilation. He found that in the average 5 year old nephrotic child, nitrogen assimilation reached a maximum on a diet furnishing approximately 3 grams of protein per kilogram of ideal body weight. On the average, 2.5 grams of protein per kilogram of ideal body weight were necessary to insure a positive nitrogen balance.

Addis (3) approaches the problem of protein intake in nephrotic patients from the standpoint of work performed by the kidney in metabolizing that protein. He maintains that all patients with the nephrotic syndrome should be treated as though they were in the degenerative stage of glomerulonephritis. The work of the kidney consists largely of excretion of urea, this being accomplished by tubular resorption of water from the glomerular filtrate in the tubule, leaving a high urea concentration. The work, therefore, is that of overcoming the osmotic pressure of the urea in the tubular contents. The only practical way to rest the kidney is to decrease the amount of urea which it must excrete, and to facilitate, if possible, the excretion of the necessary remainder. To do this, the protein metabolism of the body must be reduced to the minimum necessary for body growth and repair by means of a low protein diet. The urine should be dilute since this decreases the concentration of urea, and hence its osmotic effect. For this reason fluid should be moderately forced unless otherwise contraindicated. During the degenerative or the nephrotic stage, he advises a protein intake of 0.5 to 0.7 grams per kilogram of body weight daily plus the amount lost in the urine daily, which may be as much as 50 grams per day. The energy requirements are covered with carbohydrate and fat, which have the important advantage of sparing the protein. Since some of these patients show considerable fat intolerance, and carbohydrate has the greater protein sparing property, it is advisable to meet the energy requirements more largely through carbohydrate than fat, thus arriving at a low protein, high carbohydrate, medium fat diet.

Farr (19), and Farr, Emerson, and Futcher (20) administered casein hydrolysate intravenously to 25 nephrotic patients, with no demonstrable permanent effect on the concentration of the plasma amino acid or nitrogen in any of the patients studied. Farr felt that after amino acid injections, the capacity of nephrotic patients to assimilate high protein diets was markedly increased over the previously observed. There was no evidence that the intravenous administration of casein hydrolysate materially shortened the course of the nephrotic disease, significantly affected in a favorable manner the severity of the nephrotic signs or symptoms, or influenced the ultimate outcome favorably.

Killian demonstrated that some animals deprived of vitamin A developed edema, increased susceptibility to infection, albuminuria, and inversion of the serum albumin and globulin ratio. These findings were reversed by use of vitamin A and unsaturated fatty acids, with no other changes in the diet. Caldwell (21) treated a single case with large doses of vitamin A and unsat. fatty acids with success, but recorded period of follow-up was only 10 months.

Falkenstein and Jackson (22) have commented on acacia therapy in nephrosis. In 1933 Hartman and co-workers reported the successful use of acacia intravenously in treatment of children with nephrosis. Temporary improvement of edema and lowered serum proteins was obtained, the purpose being to increase the osmotic pressure of the blood to compensate for the decrease caused by the lowered serum protein. However, in 1935 several observers reported adverse effects of acacia on both humans and dogs. A marked lowering of serum proteins, and a deposition of acacia in liver, bone marrow, lymph nodes, lungs, kidneys and spleen were noted. It was concluded that the intravenous administration of acacia was contraindicated in nephrosis, and one thought that acacia actually damaged the liver.

The brevity of the interval since the introduction of adrenocorticotrophic hormone and cortisone in the treatment of the nephrotic syndrome prevents any conclusive remarks in this regard. The results in cases so treated at Children's Hospital will be mentioned.

VI. Laboratory — Some reports present conflicting data but in general, most workers are in agreement on the basic laboratory manifestation of the nephrotic syndrome. Gottfried, Steinman and Kramer (15) have found the total serum protein, serum albumin and albumin-globulin-ratio to be consistently low. Serum globulin values are normal or slightly decreased, fibrinogen values are usually elevated, and a correlation has been noted between the high fibrinogen value and the increased erythrocyte sedimentation rate in nephrotic patients. Some transient azotemia is observed. Uric acid values are essentially normal. Plasma amino acid nitrogen values are either normal or slightly elevated. Total lipids, especially cholesterol, are all considerably elevated. Phospho-lipid values are usually normal or slightly elevated. Serum calcium values are consistently low, probably related to the hypoproteinemia, but no clinical evidence of tetany was noted in any of their patients. Serum inorganic phosphorous values are essentially normal. Plasma chlorides and carbon dioxide content are essentially normal. Fasting glucose levels are normal or slightly elevated. Glycosuria was not seen in their patients. Vitamin A levels are elevated only moderately if at all. In most of their cases, carotene values were considerably above the normal range of 100 to 200 micrograms per 100 cc, and the elevation paralleled the degree of lipemia. Eight to ten patients showed some degree of hepatomegaly, but no frank jaundice was seen. Cephalin flocculation was 2 plus or more in six cases. Thymol turbidity values were greater than the normal of 5.0 units in all cases. Serum amylase values were below normal in some cases. Prothrombin time was significantly prolonged in only 2 cases. Sulfabromophathalein excretion was consistently normal. These findings were thought to suggest some inpairment of liver function in nephrosis.

Bradley and Tyson (6) found that albumin is always reduced, the globulin content increases, falls or stays the same, usually the beta globulin and fibrinogen increase, alpha globulin may rise and gamma globulin is almost always reduced. Normally, protein in urine does not exceed 9 mg. or a total of 150 mg. per day.

Wilson and Hadley (23) have noted that some children with the nephrotic syndrome excreted lysozyme greatly in excess of the normal of zero to 32 units of lysozyme per cc of urine, sometimes reaching levels as high as from 64 to 1,024 units per cc of urine. This was a constant finding in all children with the nephrotic syndrome. In general those patients with renal insufficiency tended to have fluctuating or persistently elevated excretion of urinary lysozyme. The degree of lysozymuria was not related to the severity of proteinuria or hypoproteinemia.

Flood and Pinelli (24) demonstrated a tremendous increase in the 24 hour urinary output of glycocyamine in seven children with the nephrotic syndrome, the value reaching more than 900% of that expected in the normal child.

VII. Pathology — The actual pathological

demonstration of the kidney lesion associated with the clinical diagnosis of lipoid nephrosis, or the nephrotic stage of chorinc glomerulonephritis, might be expected to resolve the argument as to whether the two are separate disease entities, or simply different stages or manifestations of the same disease. This, however, is not the case. Apparently there is general agreement on the presence and character of tubular involvement in the lipoid nephrosis patient, but whether or not glomerular involvement is permitted in such a diagnosis, and if any, to what degree, varies with practically every worker.

In 12 necropsies on children with the diagnosis of lipoid nephrosis, Schwarz, Kohn, Weiner (7) found that in seven children dying one year or less after the onset of symptoms, the glomeruli showed either no pathological changes or slight congestion of capillary loops. Five children dying one year or more after the onset of symptoms, revealed glomerular changes that could be divided into two groups: (A) Glomerulonephritis with some interstitial scarring and obliteration of some glomeruli, but not as extensive as in typical progressive glomerulonephritis, and (B) Definite thickening of some of the glomerlar sules. All 12 showed swelling and vacuolation of the lining cells of the convoluted tubules.

Block, Jackson et al (4) obtained 10 necropsies. In only four or five was microscopic hematuria seen during life. Minor glomerular changes, such as a few glomeruli with hyalinization, a few crescents, a few adhesions between tuft and capsule were seen in the kidneys of four children not known to have had hematuria. They concluded that there is little if any relationship between the degree of microscopic hematuria and permanent glomerular damage in lipoid nephrosis. The glomerular changes appear to be of minor significance in most instances. When discussing the prognosis of a nephrotic child, it should be remembered that nephrosis at times may terminate as nephritis, with persistent azotemia and a fatal outcome. Months or years may be required to decide whether a case of lipoid nephrosis will remain as such or if signs of chronic nephritis are developing. Since the etiology of nephrosis is unknown, dogmatism should be avoided in discussing the nephrosis-nephritis problem. These authors found degeneration of renal tubules in all cases autopsied.

In discussing a case of lipoid nephrosis (25), Mallory described the kidneys as being greatly enlarged to three times that of normal, surfaces were pale and smooth, and focal yellow spots were scattered irregularly over the entire cortex. On the cut surface the cortex was very pale and rather mottled. Bright yellow streaks could be made out in the pyramids. The gross appearance made it evident that there must have been a great deal of lipid in the kidneys.

Bradley and Tyson (6) feel that regardless of etiology, proteinemia in the nephrotic syndrome is attributable to defective glomerular activity. However, in contrast to chronic glomerulonephritis and intercapillary glomerulosclerosis, the glomeruli in kidneys of patients, usually young children, dying during the course of lipoid nephrosis present only a few or no alterations, and the tubular pathology is almost always outstanding, after the disorder is well established. Fatty and colloid substances appear as droplets or vacuoles in the tubule cells, particularly in the proximal segment. Nearly all the cells in this part of the nephron may be filled to bursting with brightly refractile fat. The deposit is distributed irregularly, and groups of grossly swollen cells bulging out through the basement membrane may give rise to distortion of the tubules. In many places the nuclei are pyknotic, and there may be necrosis and desquamation of portions of the tubular epithelium. As a result of these changes, which occur in every type of the nephrotic syndrome, the kidneys become large, pale, and rather yellowish and firm, but not fibrotic. A few microscpoic scars may be seen scattered through the parenchyma, to a greater extent perhaps in the nephritic and amyloid forms, but rarely sufficient to cause grossly detectable fibrosis or contraction.

Heymann and Startzman (11), in studying 34 children with lipemic nephrosis, obtained six autopsies. Three deaths occurred less than six weeks after the onset of symptoms. The glomeruli in all cases were normal, and the basement membranes were not thickened. They concluded that anatomically, lipemic nephrosis is a non-inflammatory lesion of the tubular apparatus, often being present without micros-

copic evidence of glomerular or interstitial inflammation.

VIII ANALYSIS OF CASES

The doctor, in whose hands is placed the responsibility of caring for the nephrotic child, will inevitably be asked by the anxious parents what the ultimate outcome of the disease will be. Until the child has been thoroughly evaluated from the clinical and laboratory standpoint, and observed over a reasonably prolonged period of time, even a qualified answer to that question cannot be given. Should the unmistakable evidences of nephritis become manifest, it would seem assured that a fatal outcome will ensue, but again the time of that unhappy result is subject to considerable variation. The great question mark lies in the child who presents the components of the nephrotic syndrome, without a previous history consisten with nephritis, and, under initial observation, fails to show any of the clinical or laboratory indications of nephritis. Is this so-called pure or lipoid nephrosis? or is it merely an unusual introduction to nephritis, the clinical and laboratory proof for which will become obvious if the child is followed carefully and for a long enough period of time?

Forty-five cases, selected from the Denver Children's Hospital records of the past decade, are herein analyzed. Each case presented originally as the nephrotic syndrome, cause undetermined, and initial work-up failed to reveal evidence of nephritis. The analysis is so-conducted as to provide a record of laboratory changes, treatment, effect of infections, and finally, the present status of each case, with particular attention being given to a comparison of pathological impression and clinical impression in each autopsied case.

A. The age of onset of the disease varied from 14 to 186 mos., or 15.5 years. The average age of onset was 52.7 months.

29 of the cases were males, 16 were females, 44 were white, 1 was oriental.

B. The first sign or symptom in 29 cases was facial edema. In 14 cases it was generalized edema. In the remaining 2 cases, scrotal edema, and emesis and fever, respectively, presented first.

Edema recurred from 1 to 26 times in the course of each individual patient, varying from 1 to 4 plus.

1 patient's retinas showed slight A-V nicking. Other than that, no retinopathy was found.

Hypertension was present 1 or more times in 33 cases. 11 had it on 1 occasion, 8 had it on 2 occasions, and 14 had it on 3 or more occasions.

Weight gain during onset or exacerbations of the disease ranged from 1 to 27 pounds.

Ascites was present in all 45 cases, 1 or more times, from 1 to 4 plus.

Hydrothorax occurred in 9 cases, with 1 being bilateral.

A definite allergy, such as asthma, hayfever or eczema, was noted in 7 cases.

C. The number of hospital admissions for any 1 patient varied from 1 to 28, with an average of 4.3 admissions per patient. The admissions were each from 1 to 258 days in length. The average length of hospital stay of patients admitted prior to the institution of ACTH and cortisone therapy was 21.0 days. The average length of stay of patients given this therapy was 16.0 days.

Concerning the effect of infections on the nephrotic syndrome, 81 upper respiratory tract infections were recorded in 28 patients. The remaining 17 patients either had no such infections, or they were not noted in the hospital record. Other infections encountered were: otitis, pneumonitis, cellulitis, infectious mononucleosis, chicken pox, bronchitis, meningitis, gastro-enteritis and others. Significantly, no remissions followed or could be attributed to any of these infections. However, a total of 39 exacerbations or worsening in symptoms occurred simultaneous with, or shortly after, the appearance of the infection. These exacerbations lasted from 1 to 38 weeks. The average duration of an exacerbation following infection was 12.1 weeks.

Measles developed in 8 patients during the course of their disease. Six patients, remarkably, had total symptomatic and laboratory remissions. Another patient had a total symptomatic and laboratory remission, but had received a course of ACTH therapy just prior to the appearance of the measles. The onset of each remission occurred from 3 to 12 days after the rash appeared. Two of those having remissions had recurrences of the nephrotic syndrome in less than six months. The remaining five patients have been in remission for six months, seven months, 28 months, 3¼

years, and five years, respectively, to the time of writing.

A total of 24 courses of ACTH were given to 14 patients included in this report. The dosage varied, usually being 10 to 20 milligrams every six hours, for 6 to 10 days, with the total amount of drug varying from 200 to 1200 milligrams per course. Fifteen remissions, including one symptomatic and 14 symptomatic and laboratory remissions, were induced in 10 patients. The onset of these remissions came from four to 15 days after the treatment was begun, and the duration of each ranged from 1 to 39 weeks, with the average remission being 8.8 weeks in length. However, two patients were still in remission at the time of writing, and the duration and final outcome of these, obviously, cannot be determined. Seven courses of ACTH were followed by diuresis and symptomatic improve-

SERIES	FACTOR	Result			
		Remission	Improved	No Change	Exacerbation
Denver Children's Hospital (45 cases)	Infection other than measles (81 infections)	0%	--	52%	48%
	Measles (8 cases)	87.5%	—	12.5%	0%
	Spontaneous (93 episodes)	63%	—	—	37%
	ACTH Treatment (24 cases)	62.5%	29%	8.5%	0%
Boston Children's Medical Center (1) (208 cases)	Infection other than measles (383 infections	24%	—	26%	50%
	Measles (14 cases)	79%	—	21%	0%
	Spontaneous	99 remissions in 180 patients	—	—	—
Measles cases in Nephrotic Syndrome, collected from literature. (21 cases)	Measles (21 cases)	38%	48%	4.5	9.5%

Table I — A comparison of changes wrought in nephrotic children by disease and other factors. The relative superiority of measles in producing a favorable change seems apparent.

Author: Derrill B. Manley, M.D.

ment, but could not be classified as remissions. Two courses were followed by no response at all.

Only four courses of cortisone therapy were given to two patients. One remission resulted, lasting for 12 weeks. Three courses were followed by no response.

In no case did treatment with ACTH or Cortisone result in an exacerbation or worsening of the disease.

An effort was made to catalogue remissions either beginning spontaneously or following conventional treatment with plasma, paracentesis, diuretics and other agents. A total of 59 such remissions occurred in 21 patients, with an average of 2.8 remissions per patient. The duration of remission varied from 1 to 130 weeks, with the average being 20.3 weeks. Again, however, eight of these patients were still in remission at last report.

Thirty-four exacerbations occurred spontaneously, without any apparent precipitating factor, in 14 patients. These lasted from two to 104 weeks, with the average being 18.5 weeks.

D. Regarding the status of these cases at the time of writing, two had been continuously ill from the time of onset of their disease, one had been in exacerbation the preceding five months, and four had been alternately in remission and exacerbation so frequently that their condition was indefinite. Sixteen patients were in remission. Of the 16, four remissions followed measles, two followed ACTH therapy, one followed ACTH therapy and measles, and one, peculiarly enough allegedly followed a severe episode of bronchopneumonia which occurred at home some 6½ years ago. The remaining eight patients developed their remissions spontaneously or following treatment with agents other than the steroids, these remissions varying from 12 months to five years in length.

Fifteen of the original 45 patients are dead, after experiencing none to seven remissions, and none to eight exacerbations. Each fatal case had an average of 1.0 remissions and 1.1 exacerbations before death. The duration of the disease prior to death varied from 10 weeks to four years, with an average of 79.1 weeks. The clinical cause of death, in 10 cases, was variously given as acute pulmonary edema, pneumococcal peritonitis and septicemia, pneumococcal meningitis, bronchopneumonia, cardiac failure, uremia, and pericarditis. In five cases it was not given. Seven autopsies were obtained. In eight cases no autopsies were obtained, six of these dying outside the hospital.

No recent information is available in seven cases.

* * *

This is the second section of a three part article. The third section of this article will appear in the January, 1954 issue.

PHOENIX *Clinical* CLUB

MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 37301

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

First admission. A sixty-five-year-old woman was admitted to the hospital because of arthritis, faintness and chest pain.

Six years before entry the patient had an episode of pain, swelling and redness involving numerous joints, particularly those of the fingers, and the elbows, shoulder, hip and knees. Similar attacks had recurred over the years, leading to deformities that were most marked in the hands. About two years before admission the patient noted weakness and easy fatigability. A diagnosis of anemia was made and she was treated with iron and liver, but despite this therapy she became progressively weaker. One year prior to entry she had a sudden attack of severe chest pain localized anteriorly in the region of the left lung base, markedly aggravated by breathing. She developed dyspnea and fever but no cough, cyanosis or hemoptysis. These symptoms subsided over a period of a week, during which time she was confined to bed. There had been several similar episodes since that time.

During the past year she had also noted a rash over the nose. Two weeks before entry she developed a symmetrical non-pruritic rash over the forearms, chest, buttocks and feet. Her appetite had become progressively poorer during the last two years of her illness, and she had lost thirty-three pounds in weight. Additional symptoms, not definitely dated in onset, were soreness over the entire skull, intermittent eyeball pain, loss of hair of the head, appearance of "small lumps in her lips lasting one to two days," a nonproductive morning cough, a sensation of choking toward the end of meals, dizziness even while in bed, four-times nocturia and numbness in the shoulders. Symptoms had been persistent and moderately aggressive. The patient had taken many medications but did not know the nature of any.

The patient was married and had two children. The family history was negative and there was no history of exposure to poisons.

Physical examination revealed maculopapular eruptions on the nose and extensor surfaces of the forearms, knees and tibias. There was tenderness over the scalp. The axillary and supraclavicular lymph nodes were palpable, enlarged and rubbery. The lungs, heart, and abdomen were negative; the liver and spleen were not palpable. The hands showed arthritic deformities and there was limitation of motion in the elbows and temporomandibular joints.

The temperature, pulse, and respirations were normal. The blood pressure was 110 systolic, 75 diastolic.

The urine had a specific gravity of 1.020 and gave a 3 plus test for albumin; the sediment contained 2 red cells, 2 white cells, and no casts per highpower field. Examination of the blood revealed a hemoglobin of 8 gm. and a white-cell count of 3500, with 68 per cent neutrophils; the red cells were normochromic and normocytic. The total protein was 5.87 gm., the albumin 2.85 gm., the globulin 3.02 gm., the nonprotein 40 mg., the sugar 97 mg., and the uric acid 4.2 mg., per 100 cc. The prothrombin time was 18 seconds (normal, 17 seconds).

In the hospital the patient showed little change clinically. A phenolsulfonphthalein-excretion test produced 25 per cent in one hour and 35 per cent in two hours. A urine-concentration test showed specific gravities of 1.010, 1.010, 1.015, and 1.012. A urine-urobilinogen determination could not be carried out because of the presence of albumin. Wintrobe studies disclosed a red-cell count of 4,300,000, a hematocrit of 22, a hemoglobin of 7 gms., a mean corpuscular volume of 51 cu. microns, a mean corpuscular hemoglobin of 17 micromicrogm, and a mean corpuscular hemoglobin concentration of 31 per cent. A Congo red test showed 77 per cent retention in the serum; the blood cholesterol was 172 mg. per 100 cc., and the sedimentation rate 1.94 mm. per minute. An electrocardiogram was within normal limits. A roentgenogram of the chest showed a few scars in the lungs and a few calcified lymph nodes. There was thickening of the pleura in each costophrenic angle or possibly some fluid. The heart was generally enlarged and the aortic knob was calcified. X-ray films of the hands and wrists demonstrated narrowing of most of the interphalangeal joint spaces and proliferative changes about the margins. The bones were decalcified. An x-ray film of the skull and a plain film of the abdomen were negative.

Treatment consisted of blood transfusions and supportive therapy, and the patient was discharged at her own request on the seventeenth day. Numerous urinalysis disclosed a specific gravity ranging from 1.013 to 1.022 and 2 plus to 4 plus tests for albumin; a few sediments contained occasional granular or hyaline casts. The white-cell count never rose above 5200, but the blood hemoglobin was elevated to 12.5 gm. after transfusions.

Second admission (three and a half months later). In the interval the patient had pursued a rapidly downhill course characterized by headache, vomiting preceded by marked nausea, generalized itching and decreased vision. Her appetite had been poor. She had nocturia, insomnia and a cough productive of whitish sputum. Chest pain of pleuritic character had become more or less constant, and during the last few weeks she had remained in bed much of the time.

On physical examination the patient responded somewhat slowly. The left pupil measured 3 mm. in diameter, the right 2 mm.; both reacted promptly to light and on accommodation. The disk margins were blurred and showed recent hemorrhages bilaterally. On the right there was extensive fluffy exudate and

on the left extensive thrombosis of veins and arteries. There was some puffiness about the eyes. There were palpable small lymph nodes in the cervical, axillary and inguinal areas. The lung bases showed decreased resonance with a few inspiratory rales on the right. The heart rate was 84, with many ventricular premature beats. The point of maximum impulse was 1 cm., to the left of the midclavicular line. The pulmonic second sound was louder than the aortic. There were blowing Grade I to II apical and pulmonic murmurs. The liver was 2 fingerbreadths below the costal margin and slightly tender. The spleen was not palpable. There was 1 plus sacral edema and 2 plus edema of the legs extending up to the knees. An erythematous maculopapular rash was present over the back, arms, nape of the neck and bridge of the nose.

The temperature, pulse and respirations were normal. The blood pressure was 195 systolic, 90 diastolic.

The urine had a specific gravity of 1.011 and gave a 3 plus test for albumin; the sediment contained 2 to 5 white cells, 15 to 20 red cells and a few granular and hyaline casts per high-power field. The hemoglobin was 8.0 gm. and the white-cell count 3900, with 82 per cent neutrophils. The blood sugar was 89 mg., the total protein 5.18 gm., the albumin 2.28 gm., the globulin 2.90 gm., and the nonprotein nitrogen 62 mg. per 100 cc.; the sodium was 136.0 milliequiv. the chloride 75 milliequiv., the potassium 5.2 milliequiv., and the carbon dioxide 15.9 milliequiv. per liter. An electrocardiogram showed nonspecific T-wave changes. An x-ray film of the chest showed essentially the same findings as at the time of previous admission.

The patient was treated with cortisone, 100 mg. per day, for three weeks, during which time she had less itching, no vomiting, a better appetite and a sense of well-being. The nonprotein nitrogen, however, continued to rise despite this therapy; because of this the cortisone administration was stopped. It was believed that the patient was approaching renal failure and that little could be done for her. She was discharged on the thirty-eighth hospital day.

On returning home the patient continued on a downhill course, with intermittent itching and vomiting and increasing weakness. She also developed cough, orthopnea and hemoptysis, raising clots up to teaspoonful size. Death occurred during a coughing paroxysm about three weeks after discharge.

Dr. LESLIE B. SMITH

The most striking feature of the case for discussion is that the disease involved many systems. It was a generalized systemic process. The patient had had recurrent deforming arthritis for many years, she had recurrent pleuritic pains for one year, and x-rays showed thickening of the pleura. The kidneys were involved as shown by the nocturia, albumin in the urine, a PSP of 25 per cent in one hour, and there was inability to concentrate, the NPN was 62 mgm. per cent, acidosis was present with a CO_2 15.9 milliequiv. per liter. There was edema of the eyelids and there were 10-15 red blood cells per high power field in the urine. The heart was enlarged, there was a murmur, and heart failure was present. There were non-specific T wave changes shown on the electrocardiogram. Involvement of the nervous system was manifested by unequal pupils, blurring and choking of the optic discs, and neuritic pains over the scalp and shoulders. The eyes showed, in addition to the blurring, recent hemorrhages, fluffy exudates, and extensive thrombosis of the veins and arteries. There were enlarged rubbery lymph nodes. The hematopoietic system was affected and there was a neutropenia of 3,500 cells per cubic centimeter, and the hemoglobin was 8 grams per 100 cc of blood. Liver pathology was indicated by reversal of the albumin-globulin ratio (alb. 2.8 and glob., 3.02).

She had had a rash over the nose for a year and there was a nonpruritic rash over the forearms, chest, buttocks, and the feet. This type of generalized disease is very likely due to diffuse collagen disease. The skin lesions plus the neutropenia make the diagnosis most likely that of chronic disseminated erythematosus.

Chronic systemic lupus erythematosus may be present for ten or more years, with exacerbations and remissions, with varying degrees of activity in various organs. Archie H. Baggenstoss of the Mayo Clinic recently wrote "Acute disseminate lupus erythematosus is a systemic disease in which anatomic lesions are found predominently in the kidneys, heart,

spleen and lungs. Any organ, however, may be involved, particularly in its vascular or supporting components. Although involvement of collagen and intercellular ground substance plays an important part in the development of many of the lesions, cellular changes, particularly in the kidneys, may occur, run their course, and lead to death without demonstrable involvement of the collagen. Consequently, in the present state of knowledge it would probably be unwise to circumscribe the disease by the term "diffuse collagen disease".

The lesion which has been interpreted as pathognomonic of lupus erythematosus is the so-called wire-loop lesion in the kidneys and occurs in about 60 per cent of the cases, but it may occur in eclampsia, scleroderma, malignant nephrosclerosis, focal glomerulonephritis, and in diffuse glomerulonephritis. There may be proliferation of the endothelium of the glomerular capillaries or focal necrosis of the glomerular tufts. Renal tubular changes are not prominent until the glomerular changes are advanced. Renal insufficiency occurs in about 40 per cent of the cases.

Diffuse or focal fibrinous pericarditis occurs frequently. This process may extend beyond the pericardium. The choking on swallowing present in this case may be evidence of such an extension into the mediastinum. The endocardium is the site of nonbacterial, verrucous endocarditis in about 40 per cent of the cases. The murmurs which developed in this case were probably due to such an endocarditis. The myocardial lesions usually reveal fibrinoid degeneration of the interstitial collagen fibers, usually with a moderate exudative reaction.

The peculiar periarterial fibrosis about the central arteries of the spleen has been considered to be almost pathognomonic of lupus erythematosus. Pulmonary lesions occur frequently, although none of these lesions are pathognomonic. Pleurisy, interstitial pneumonitis and alveolar hemorrhages occur, all of which were present in the case under discussion. The neurologic lesions are predominantly vascular in origin, there is fibrinoid degeneration of the media, demyelinization, degeneration of nerve cell, and edema.

Adenopathy occurs in about 50 per cent of the cases of disseminated lupus — present in our case. Depression of the bone marrow is frequent and in this case there was neutropenia and anemia, but thrombocytopenia was not recorded. The reversal of the albumin-globulin ratio occurs frequently and may represent liver damage. This was present in this case, as was fever, which is also common.

The L. E. cell phenomenon, discovered by Hargraves, is the most diagnostic finding for disseminated erythematosus. These cells may be demonstrated in the peripheral blood or in the bone marrow. I am at a loss to know why there is no mention of a search for L. E. cells in this protocol because this test was known to them, in that the patient was treated with cortisone, which dates it since the discovery of the L. E. phenomenon. I will assume that this information was intentionally omitted to stimulate our mental processes.

Henry E. Michelson, University of Minnesota, has classified lupus erythematosus as follows: 1. Acute localized, edematous type; 2. Chronic discoid type; 3. Chronic disseminated type; 4. Subacute disseminated type; 5. Acute disseminated systemic and septic type, and 6. Protracted systemic type.

There is no specific treatment for this disease. Para-amino benzoic acid, cortisone and ACTH are being used with varying claims, but there is no cure. Gold, writing in Lancet, 1951, has intimated that there may be some etiologic relationship between the use of penicillin or sulfonamide medication and disseminated lupus erythematosus. This is so likely that he recommends that these drugs not be used in the treatment of this disease.

There have been several cases reported recently in which the pathologic lesions of two or more of the collagen diseases were present in the same patient, hence they cannot always be distinguished even by the pathologist.

Diagnosis: Chronic disseminated lupus erythematosus involving the joints, pleura, lungs, heart, pericardium, mediastinum, skin, nerves, brain, eyes, liver, bone marrow, and kidneys. Death was due to renal failure. Even though the Congo Red test was normal there is a possibility that this patient also had amyloid disease which may occur in this disease.

———

Dr. FRANK J. MILLOY

When our case for today is viewed in retrospect we have a chonically ill 65 year old woman who suffered from a gradually pro-

gressive, downhill illness, which ended in death after 6 years, in spite of many attempts to change the course of her illness. The first four years of her illness seemed to be quite typical of rheumatoid arthritis. But during the next two years the train of symptoms which finally sent her to the hospital, increased and progressed in frequency and intensity. She died suddenly during a paroxysm of coughing so that she must have suffered a cardic death.

On first admission to the hospital physical examination did not reveal any abnormality of the heart. But three and a half months later, at the second admission, examination revealed blowing grade 1 to 2 apical and pulmonic murmurs. And there were many premature ventricular beats. With her history of recurrent attacks of chest pain and joint pains and temperature and secondary anemia and gradually progressive weakness, all of which suggest some type of infection, subacute bacterial endorarditis immediately presents itself. The liver was two fingerbreadths below the costal margin ant there was evidence of peripheral edema, all indicating impending acute congestive heart failure.

The urine showed 3 plus albumin, the blood pressure was 195, the NPN was 62 mg., there were eye ground changes, the CO_2 combining power had dropped from a normal of 24-28 milliequiv., per liter to 15.9 milliequiv., indicating impending acidosis. And all pointing to severe renal failure caused by either an acute nephrosis, or a subacute or acute disseminated glomerular nephritis.

The protocol states that the patient was placed on cortisone 100 mg. per day but because the NPN was increasing this was discontinued. This is an interesting observation when we review the symposium on cortisone treatment in the November 29th issue of the AMA. Although his conclusions are based on observations in children, Riley of New York states that remissions in the nephrotic syndrome do occur when treated with cortisone. But he does warn that depression of renal function as one of the principal dangers of this form of treatment.

In spite of all this positive evidence of a diagnosis of either subacute bacterial endocarditis, or an acute or subacut nephrosis, or nephritis, I doubt that this patient has either of these conditions in a primary form. I think that the heart murmurs are probably hemic in origin resulting from the severe secondary anemia, and the pathologist will probably report normal heart valves. I think her train of symptoms are due to a profound toxemia produced by some other primary disease.

Our attention is next attracted to the palpable lymph nodes in the cervical, axillary, and inguinal regions, and the maculopapular rash over the bridge of the nose and over the back, arms, legs, and neck. The first condition which presents itself when we have generalized adenopathy is Hodgkins' Disease. I believe Hodgkins' Disease is discussed more frequently in this club than any other single disease. It was very thoroughly discussed last time just a month ago. There are a number of findings here in addition to the generalized adenopathy to suggest such a diagnosis. Namely the six year period of illness, the bouts of temperature, the uninterrupted, progressive downhill course, the fatal termination in spite of any form of treatment, the profound toxemia, the severe secondary anemia with a persistent leucopenia of three to four thousand white cells which is so common in the terminal stages of the disease, and even the skin eruption. They were looking for positive evidence of Hodgqins' Disease in the hospital. The Congo Red test was done. This showed 77% retention of the dye in the serum. This is normal. In Hodgkins' Disease and especially if much amyloid degeneration has taken place there is rapid disappearance of the Congo Red dye from the blood serum. It is absorbed by the amyloid. As much as 80% will disappear in twenty minutes. But for some unexplainable reason it is said to disappear quickly from the blood serum sometimes in Hodgkins', even if there is not much evidence of amyloid. In Hodgkins' urobilinogen sometimes appears in the urine. They were unable to carry out this test, however, due to excess albumin in the urine. There are several findings in this clinical course against the diagnoses of Hodgkins'. The temperature rises during the illness were not the typical relapsing Pel-Ebstein temperature rises. While generalized adenopathy was present, the lymph glands remained small and did not mat together as they so commonly do in Hodgkins'. Although many patients die of the abdominal form of Hodgkins', namely malignant lyphoma without a semblance of vis-

ible lymph adenopathy. The liver became enlarged and palpable, but the spleen was never felt below the costal margin. I do not belive this patient had Hodgkins'.

The next condition which prescnts itself for consideration here is disseminated lupus erythematosis. This clinical entity is defined as among that heterogenous group of so called rheumatoid diseases, which is often distinguished by a prolonged downhill clinical course and terminates fatally, that has a striking predilection for young females, and produces characteristic pathologic changes in the vascular system. It is a disease rarely encountered in private practice. In 1935 Baehr, Klemperes, and Schifrin collected twenty-three cases, twenty-two of which were in females, eighteen were in the second and third decades of life, all but one between puberty and menopause, the youngest being 7 years and the oldest forty-five. Our patient for discussion today was 65. The fact that she developed typical rheumatoid arthritis during the early years of onset fits today's case. Disseminated lupus is often ushered in by pulmonary episodes of fever, coughing, chest pain and small amounts of pleural effusion. Our patient had several of these episodes the year preceding entrance to the hospital. Most athorities emphatically state that there is no connection between the disseminated type of lupus and the simple dermatological entity known as lupus erythematosis or discoid lupus, which is a skin eruption that usually appears over the bridge of the nose and out across the cheeks. But a skin eruption may or may not be present in the disseminated type. When it is present it often occurs across the bridge of the nose as it did in this woman, and spreads to the chest, back, or extremities. The eruption is described as a maculo-papular erythema which may or may not itch. Anatomically there is widespread destruction of the collagen which is the matrix or binding substance in the connective tissue which surrounds the small blood vessels and capillaries of the body. This destructive process may spread to the areas of connective tissue which lie underneath the mucus membranes of all the internal organs as well as the intima of the larger blood vessels. Hence the characteristic vascular changes. Both pericardial and endocardial involvement is common. In about 30% of cases examined grossly, the endocardium exhibits pathogenic lesions first described by Lebman and Sachs as endocardial vegetations which may be small and verrucous, or large and flat. They usually occur on the valves but may spread all over the endocardium.

The kidneys are generally large and smooth. They are a common site for the areas of focal necrosis which are so pathogenic of disseminated lupus, but which may occur in all the internal organs, the lymph glands, and the blood vessels.

The December issue of Annals of Internal Medicine reports a case of acute disseminated lupus erythematosis in a 52 year old colored male with autopsy findings. They summarize the literature as follows: Vessey and Nelson reported a case in a 23 year old negro male with autopsy findings, which was the first report of the acute form in a colored male recorded in North American literature.

Paster, Sloan, and Goldburgh reported necropsy findings in five male patients with the acute form, two of whom were colored, one 12 years of age and the other 30. During the years 1935 to 1950, 12 patients with acute disseminated lupus were autopsied at the Medical College of Virginia. Five were white females, six were negro females, and one was a white male. The following conclusions seem to be universal:

"At the autopsy table, the frequent paucity of severe, gross anatomic changes, and the absence of a distinctive lethal lesion, is in striking contrast to the profound toxemia and the train of clinical events leading to the death of the patient."

The case reported in the Annals of Internal Medicine is from the Medical School of Virginia. Their pathology department report a typical lupus rythematosis cell demonstrated in the bone marrow. So accordingly a diagnosis is possible by performing a sternal puncture.

On account of the skin manifestations, the generalized lymph adenopathy, and the multiplicity of symptoms, a number of other conditions are suggested in today's case, namely Boeck's Sarcoid, mycoses fungoides, pariartentis nodosa, aleukemic leukemia, and several lymphoplastic entities, but none of them fit the history given today.

The progressive development of rheumatoid arthritis, the epsodies of pleuritic attacks with

pain and fever, the small amounts of pleural fluid, the evidence of myocardial, and endocardial involvement in the presence of a normal E.K.G., the constant and prolonged albuminuria which has resulted in an inversion of the A-G Ratio, the signs of impending renal failure, the skin manifestations, and the profound toxemia suffered by the patient make a diagnosis of disseminated lupus erythematosis almost mandatory.

DIFFERENTIAL DIAGNOSIS

This patient for four years had episodes of polyarthritis without much evidence of systemic disease, and then two weeks before admission there was a change.

May I see the x-ray films, Dr. Wyman? I presume the x-ray films of the skull were taken to rule in or out multiple myeloma which, of course, has to be thought of in joint disease, with a high sedimentation rate and anemia. I think that many of us have missed a diagnosis of multiple myeloma because there was no Bence-Jones protein in the urine or no plasma cells were seen in the peripheral blood.

Dr. Stanley M. Wyman: The films of the chest in the first examination demonstrate what I think is probably a small quantity of fluid in the pleural space, rather than thickened pleura. The heart shadow is large but shows no characteristic configurations. I wonder how much of the enlargement is due to the heart itself and how much to fluid in the pericardium. There is a definitely calcified aortic arch. The lung fields are not grossly remarkable. The films of the skull show no localized disease. The joint spaces of the hands and wrists are narrowed, as recorded, the most pronounced changes being about the terminal interphalangeal joints, with considerable hypertrophic changes; in addition there is rather severe osteoporosis. The arthritis type seems to be mixed — rheumatoid and degenerative. I would wonder, from the films alone, about psoriatic arthritis.

Dr. STILLMAN: The terminal phalanges are involved in rather destructive change. The index finger shows the classical deformity of rheumatoid arthritis, with flexion of the proximal joint and extension of the terminal one, but it is rather difficult to be sure of the type of arthritis from the x-ray film alone.

Dr. WYMAN: There is some abnormality of the index finger, which may be due to an old injury or may be congenital. The later films of the chest show essentially the same findings as previously, except that there is more fluid in the pleural space and atelectasis or possibly some pneumonitis in the left lower lobe. The later films of the skull demonstrate no definite localized changes.

Dr. STILLMAN: In attempting to unravel these knotty problems it is generally a good principle to try to explain all the symptoms and signs of the patient's illness on the basis of one disease, lupus erythematosus. I am unable to explain the case entirely on the basis of disseminated lupus erythematosus.

In the first place, let us consider rheumatoid arthritis. Could that conceivably explain this patient's whole illness? The clinical course, certainly the first four years of it, sounds rather like rheumatoid arthritis — the widespread joint involvement, the episodic nature of the disease and the development of permanent deformities. Then the disease changed its course and the patient went steadily downhill. Certainly one sees in rheumatoid arthritis patients who run very malignant courses, with fever, serous-surface involvement and cardiac damage. They can develop various types of renal disease — amyloid disease, pyelonephritis or glomerulonephritis. One could even account for the rash on the basis of rheumatoid arthritis, but the leukopenia cannot be fitted into this diagnosis. I should like to persist in my belief that the first four years of the patient's illness were different from the last two, and I should like to believe that she had rheumatoid arthritis during the first part of the illness and then developed something else.

What part of the symptom-complex that this patient showed could lupus erythematosus have explained? Certainly it could have accounted for the systemic signs of weakness, weight loss, fever, anemia and lymphadenopathy and could have accounted for the marked chest pain, which is common with involvement of the serous surfaces. The distribution of the rash was certainly consistent with disseminated lupus. The rash as described certainly does not sound like psoriasis, although the involvement of the terminal phalanges makes one think about it. Disseminated lupus would also explain the kidney damage demonstrated during the first hospital admission. It is ra-

(The Council on Pharmacy and Chemistry of the American Medical Association has adopted the following statement which appears in New and Nonofficial Remedies, 1953, Philadelphia, J. B. Lippincott Company, pp. 171-173, 1953.)

METHANTHELINE BROMIDE.—*Banthine Bromide (Searle)*

β-Diethylmethylaminoethyl 9-xanthenecarboxylate bromide

Actions and Uses.—Methantheline bromide, a parasympatholytic agent, produces the peripheral action of anticholinergic drugs such as atropine and the ganglionic blocking action of drugs such as tetraethylammonium chloride. Tolerated amounts of methantheline bromide exert side effects typical of atropine-like drugs, but cause less tachycardia, and also cause less postural hypotension than does tetraethylammonium chloride. Toxic doses produce a curare-like action at the somatic neuromuscular junction.

Clinical studies indicate that the drug effectively inhibits motility of the gastro-intestinal and genito-urinary tracts and, to a variable degree, diminishes the volume of perspiration and salivary, gastric, and pancreatic secretions. It also decreases mucoprotein secretion. Like atropine, it produces mydriasis and cycloplegia when applied locally to the eye or administered systemically, but until more clinical evidence becomes available, its local use for this purpose is not recommended. The value of the drug for preventing abnormal cardiac reflexes through the vagus during thoracic surgery, or as an agent for routine preoperative medication in place of atropine, requires further investigation before final conclusions can be reached.

Methantheline bromide is indicated for clinical use whenever anticholinergic spasmolytic action is desired, provided it is not contraindicated because of its atropine-like characteristics or because of a patient's intolerance to the unavoidable side effects of such therapy. It is useful as an adjunct in the management of peptic ulcer, chronic hypertrophic gastritis, certain less specific forms of gastritis, pylorospasm, hyperemesis gravidarum, biliary dyskinesia, acute and chronic pancreatitis, hypermotility of the small intestine not associated with organic change, ileostomies, spastic colon (mucous colitis, irritable bowel), diverticulitis, ureteral and urinary bladder spasm, hyperhidrosis or control of normal sweating which aggravates certain dermatoses, and control of salivation.

Methantheline bromide produces some degree of cycloplegia and mydriasis in therapeutic doses and therefore should not be administered to patients with glaucoma. It sometimes decreases the ability to read fine print. Xerostomia (dryness of the mouth) is a common, sometimes transient, side effect. Urinary retention of varying degrees may occur in elderly male patients with prostatic hypertrophy, and some patients may have difficulty emptying the rectum. Patients with edematous duodenal ulceration may experience nausea and vomiting during initial administration of the drug. These patients should take only liquids during the institution of drug therapy. All patients should be advised of the possible occurrence of side effects. Overdosage sufficient to produce a curare-like action may be counteracted by prompt subcutaneous injection of 2 mg. of neostigmine methylsulfate.

Dosage.—Methantheline bromide is administered orally or parenterally by either the intramuscular or intravenous route. Parenteral administration is not advised for patients able to take the drug orally. The average initial dose for adults, oral or parenteral, is 50 mg. For patients with considerable intolerance, 25 mg. may be employed. In the management of peptic ulcer, a beginning schedule of 50 mg. three times daily before meals, and 100 to 150 mg. on retiring is suggested. However, the usual effective dose is 100 mg. four times daily, although some patients may require more or less than this amount. The dosage may be increased to tolerance, using dryness of the mouth as a guide, and adjusted to meet the individual response of patients. Maintenance dosage in peptic ulcer is usually considered to be about one-half the therapeutic level. In the management of other hypermotile or hypersecretory states, the dosage should be adjusted to the smallest amount which will relieve the symptoms. When spastic conditions are secondary to inflammatory or other organic lesions, therapy directed toward the cause should be employed whenever possible.

G. D. SEARLE & CO.
Powder Banthine Bromide: 2 cc. ampuls. 50 mg.
Tablets Banthine Bromide: 50 mg.

ther rare for patients with disseminated lupus erythematosus to die in renal failure, and this patient certainly approached it, with her marked diminution in kidney function. Also, hypertension in patients with disseminated lupus is a very rare complication, even terminally, with the fair degree of renal damage that such patients develop.

Another in this group of closely related collagen disease is polyarteritis nodosa. This could account for many of the abnormalities just as well as lupus erythematosus can. However, there are some important differences. In polyarteritis there is commonly a leukocytosis rather than a leukopenia. I am not familiar with any long-standing rashes of this distribution that occur in polyarteritis. However, it could better account for the renal failure that led to the terminal phase of the patient's illness. Multiple pulmonary infarcts, a common occurrence in polyarteritis, could have caused the hemoptysis. I should like to interject that I have seen several cases in the last two years with lesions in the lung parenchyma very similar to the Aschoff nodules that one sees in rheumatic fever — and yet they occur in people with rather typical rheumatoid arthritis! The pathologists found the lesions to be somewhat atypical Aschoff nodules, and they were not at all happy about making a diagnosis of rheumatic fever. Both these patients developed marked pulmonary hypertension and increasing respiratory distress. Whether something of that sort had developed in this patient I do not know. I think it would possibly be better to explain the pulmonary symptoms on the basis of repeated pulmonary infarctions.

There is a fundamental hotly debated question whether the collagen or connective tissue diseases are related. One is impressed by seeing two patients who present essentially identical clinical pictures in adjacent beds in the hospital of whom one demonstrates the lupus erythematosus cells and the other does not. One patient's condition is called rheumatoid arthritis on the one hand and the usual case of the laboratory findings, is considered disseminated lupus. The average case of rheumatoid arthritis on the one hand and the usual case of lupus erythematosus on the other can be differentiated quite readily, but there is a twilight zone where cases of the two diseases become more and more similar. Whether they actually merge in the center is something I cannot answer. I have seen a case of dermatomyositis in which the symptoms of dermatomyositis disappear toward the end and in which the outstanding autopsy findings were actually those of polyarteritis nodosa.

In summary, I think the patient had changes that I would consider those of rheumatoid arthritis. I think she also had disseminated lupus and I would not be at all surprised to find in the kidneys, in addition to the wire-loop changes that have been described as characteristic of lupus, some larger-vessel changes that would be consistent with polyarteritis. I began by trying to explain this on the basis of one disease. I am ending up with a mixed grill. I probably shall regret it, but it seems to me that these diseases merge with one another so frequently that it is extremely difficult to draw the line — certainly clinically and sometimes even pathologically.

Dr. MARIAN W. ROGERS: We had much the same difficulty as Dr. Stillman did in deciding where in the group of connective-tissue diseases to place this patient's disease. Lupus erythematosus is unusual in a woman over sixty years of age, although it does occur. However, we made a diagnosis of disseminated lupus erythematosus, the rash was not typical but was not entirely atypical, and the renal involvement, we thought was part of the general disease. We raised the question of some other type of renal disease's being present also because we believed the degree of renal involvement was unusual for lupus erythematosus. It has been our practice to assume that the joints of this type were due to rheumatoid arthritis, but more and more we hesitate to say that disseminated lupus erythematosus cannot cause such changes. I do not know the answer. I would say that this patient had chronic joint disease that was in no way distinguished from rheumatoid arthritis but may have been part of lupus erythematosus.

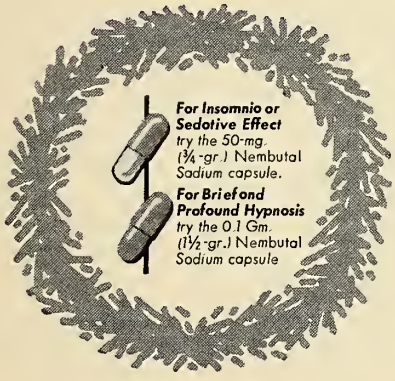
No one expected this patient to do well on cortisone; the renal disease was her main difficulty, and we have no evidence that cortisone improves renal disease. However, we believed that this was one more case to prove that cortisone does not improve renal disease. She went downhill on treatment. There was one other reason for giving cortisone. There was some question whether the eye signs were



They'd decorate it all in an hour...

all the patients who represent the 44 uses for short-acting

NEMBUTAL®



● For every patient's need . . . in many dosage forms . . . *in more than 44 clinical conditions*, short-acting NEMBUTAL offers these advantages:

1. *Short-acting* NEMBUTAL (*Pentobarbital, Abbott*) *can produce any desired degree of cerebral depression—from mild sedation to deep hypnosis.*
2. *The dosage required is small—only about one-half that of many other barbiturates.*
3. *Hence, there's less drug to be inactivated, shorter duration of effect, wide margin of safety and little tendency toward morning-after hangover.*
4. *In equal oral doses, no other barbiturate combines quicker, briefer, more profound effect.*

Won't *you* remember—and compare—these advantages the next time, and every time, you write a barbiturate prescription?

Abbott

1-255A

due to lupus erythematosus or to renal disease. If they were due to lupus, we believed they might improve on cortisone.

I should like to hear Dr. Cogan's opinion concerning whether the eye signs were due to lupus erythematosus or to renal disease.

Dr. DAVID G. COGAN: The eyes showed diffuse hemorrhages throughout the fundi that were quite nonspecific. The distribution of the changes was that which one sees in hypertensive retinopathy, but one never sees the quantity of hemorrhages and exudates that she had without more marked changes in the vessels when it is due to hypertension alone. Despite what the record says, it was my opinion that the vessels showed very little change. They were certainly not proportionate to the extensive retinopathy. I think the change was not secondary to the renal disease.

Dr. ROPES: I think it was the impression that there was some improvement in the eye condition, due to cortisone.

Dr. COGAN: I did not see the patient after she was treated with cortisone.

Dr. ROPES: It was questionable, but the ophthalmologist who saw her believed that there was some improvement and that this gave further suggestion that the eye changes were associated with disseminated lupus erythematosus rather than with renal disease.

CLINICAL DIAGNOSIS: Lupus erythematosus disseminatus

Dr. STILLMAN'S DIAGNOSIS: Rheumatoid arthritis; Lupus erythematosus disseminatus; , Polyarteritis nodosa of kidney

ANATOMICAL DIAGNOSIS: (Lupus erythematosus disseminatus); Polyarteritis nodosa; Rheumatoid arthritis; Myocarditis with Aschoff nodules; Glomerulitis, focal, acute and chronic; Endocarditis of mitral valve, acute and chronic; Pericarditis, fibrinous and fibrous, with extensive edema.

———

PATHOLOGICAL DISCUSSION

Dr. TRACY B. MALLORY: The diseases of this group are quite as hard to distinguish anatomically as they are clinically — perhaps harder — and very often clinical and anatomic evidence do not agree very well in a matter of classification. Some of you may remember a case of apparently clinically typical disseminated lupus erythematosus discussed by Dr. Soma Weiss some years ago in this amphitheater in which the autopsy showed a widely disseminated polyarteritis nodosa. That was the major anatomic finding in the case under discussion. Grossly, the most impressive lesions were a severe pericarditis with marked thickening of the pericardial tissue, as well as a considerable accumulation of fluid, some degree of endocarditis of the mitral valve and very peculiar kidneys. They were of approximately normal size, or only very slightly enlarged. The cortex was described as being of a greenish-gray color. There were no areas of infarction such as one would expect if the renal lesion was secondary to the vascular one. Microscopical preparations showed the presence of widespread vascular lesions in virtually every organ of the body. In the kidneys there were occasional examples of the so-called wire-loops, but others were obscured by severe diffuse glomerulitis with fibrinoid necrosis of the tufts, an appearance that has been described in polyarteritis nodosa by Davson, Ball and Platt. The mitral vegetations showed fibrinoid necrosis, and scattered through the myocardium were numerous foci quite typical of Aschoff bodies.

Dr. WILLIAM CLARK: If you finally classify the patient as having had polyarteritis nodosa, I would say what Soma Weiss said—that this was actually lupus erythematosus with widespread vascular lesions similar to periarteritis nodosa.

Dr. MALLORY: By now there have been a great many cases, here and elsewhere, of clinically typical lupus erythematosus that have shown widespread polyarteritis nodosa at autopsy.

Dr. STILLMAN: Isn't that true also of dermatomyositis?

Dr. MALLORY: I believe it to be true. It also can be true of rheumatic fever. The existence of arteritis lesions does not rule out any other diagnosis.

Dr. ROPES: And the relationship of the lesions to the clinical picture remains unknown!

Dr. WILLIAM CLARK: And the finding of Aschoff bodies does not make it necessary to make a diagnosis of rheumatic fever!

* * *

ARIZONA MEDICINE JOURNAL, IS INTERCHANGING JOURNALS WITH 54 FOREIGN MEDICAL LIBRARIES

Your Official Professional Group Accident and Sickness Plan

Approved and recommended by Council Of

THE ARIZONA MEDICAL ASSOCIATION, INC.

Provides Maximum Protection at Minimum Cost
World Wide Coverage

IT PAYS YOU:

$300 a Month for Total Disability by Accident up to 5 years
$150 a Month for Partial Disability by Accident up to 6 months
$300 a Month for Sickness up to 2 years

$2,500 Accidental Death

$10,000 Dismemberment and Loss of Sight

$7.00 a Day for Hospital Plus $25 for Miscellaneous Expenses
$5.00 a Day for Graduate Nurse, at home

LOW SEMI-ANNUAL PREMIUMS

Through Age 49—$49.80 Ages 50 through 59—$56.60 Ages 60 to 65—$70.05

NO AGE LIMIT FOR RENEWAL

Policy Cannot Be Terminated Except For

1. Non-payment of premium
2. Retirement from practice
3. Loss of membership in Association
4. Termination of master policy

For additional information and official application contact

SIMIS INSURANCE SERVICE AGENCY

State Representatives

NATIONAL CASUALTY COMPANY

DWIGHT McCLURE GEORGE B. LITTLEFIELD W. J. WINGAR
Telephone ALpine 3-1185 407 Luhrs Building, Phoenix

PAUL H. JONES INSURANCE AGENCY

Pima County Representative

617 N. Stone Avenue, Tucson, Arizona Telephone: Tucson 2-2803

Our members are dairymen whose business is supplying good milk for

WEBSTER'S

milk and milk products.

We are aware of the importance of good milk to good health and of our obligation to supply a product which will merit your confidence.

ARIZONA MILK PRODUCERS

422 Heard Building Phone ALpine 3-0893

METAL OFFICE FURNITURE
G. F. STEEL DESKS
ALUMINUM CHAIRS
CARDINEER ROTARY & VICTOR
VISIBLE FILES

Heinze Bowen & Harrington, Inc.

228 West Washington St.
Phone ALpine 4-4179
PHOENIX ARIZONA

WHY BUY

WHEN WE SUPPLY

Everything in linens and uniforms for the physician and his staff

CITY LINEN SUPPLY INC.

333 N. 7th Ave. — Phoenix, Arizona

ALpine 3-5175

The PRESIDENT'S Page

MERRY CHRISTMAS

THE OFFICERS OF ARIZONA MEDICAL ASSOCIATION, OUR EXECUTIVE SECRETARY BOB CARPENTER, AND THE EDITORIAL STAFF AND THE PUBLISHER OF ARIZONA MEDICINE JOIN ME IN EXTENDING THE SEASON'S GREETINGS TO ALL OUR MEMBERSHIP, TO OUR MEDICAL AUXILIARY, AND TO ALL OUR FRIENDS WHO MAKE ARIZONA MEDICINE A FINE JOURNAL.

HAPPY NEW YEAR

Edward M. Hayden

President

Editorial

ARIZONA MEDICINE
Journal of
ARIZONA MEDICAL ASSOCIATION, INC.
VOL. 10 DECEMBER, 1953 NO. 12

EDITORIAL BOARD
R. Lee Foster, M.D. ..... Editor-in-Chief, Phoenix
Harold W. Kohl, M.D. ..... Assistant Editor, Tucson
ASSOCIATE EDITORS
William H. Cleveland, M.D. ..... Phoenix
Howard D. Cogswell, M.D. ..... Tucson
Louis G. Jekel, M.D. ..... Phoenix
Frank J. Milloy, M.D. ..... Phoenix
William H. Oatway, Jr., M.D. ..... Tucson
Leslie B. Smith, M.D. ..... Phoenix
Arie C. Van Ravenswaay, M.D. ..... Tucson
W. Warner Watkins, M.D. ..... Phoenix
COMMITTEE ON PUBLISHING
R. Lee Foster, M.D., Chairman ..... Phoenix
Carroll C. Creighton, M.D. ..... Flagstaff
Donald E. Nelson, M.D. ..... Safford
Darwin W. Neubauer, M.D. ..... Tucson

Robert Carpenter, Executive Secretary,
Arizona Medical Association, Inc.

ADVERTISING AND SUBSCRIPTION OFFICERS
J. N. McMEEKIN, Publisher and Business Manager,
424 Heard Building, Phoenix, Arizona

Eastern Representative
A. J. JACKSON, Director
State Journal Advertising Bureau
535 N. Dearborn St., Chicago 10, Illinois

CONTRIBUTORS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

HOW MUCH CAN ONE BELIEVE?

Every now and then (and pretty often, too) a physician must wonder how much he can believe about new drugs, new methods, new opinions. How much can he, should he, dare he believe?

In the 'olden days' (about 1900 A.D.) one could wait a few years before deciding. One would also have to wait almost that long before anything amazingly new challenged belief.

In these days, however, we have medical miracles popping up as frequently as new moons. Is it a real moon or is it a 'prop'? We must decide if we are to be modern, if we are to be true to our patients and colleagues. There must be some few criteria or a routine which will give us help.

The sources from which we get our 'scientific' news should be carefully considered and evaluated.

These include the popular magazines, newspapers, drug house publications, trade journal, scientific magazines and medical journals. Without being specific about any of these, it can be said that they do vary in the scientific accuracy of their reporting. In part this may be an unavoidable consequence of the present day demand for rapid dissemination of news. A sensational or newsworthy development often cannot wait for the long laborious time-consuming task of scientific verification or it is no longer news. Unfortunately individual bias or certain vested interests may influence some publications. Other possible influences could be cited.

It would seem as though we must keep our eyes open, sharpen our native wits, maintain a certain healthy skepticism, use all of the best sources for our estimates, and establish our own criteria. As a currently fashionable detective of the air says "all we want are the facts, ma'am", and we will then solve the case. Therefore:

1. Consider the source of the report.
2. Think back on the history of the subject or drug. Is it logical?
3. Ask an authority for an opinion. Use a local oracle, a solid teacher, 'Minor Notes and Queries', an editor, etc.
4. Remember that flaws or toxicity are almost inevitable in any new method or drug.
5. Decide on the need for the item. Is it urgent enough to take a chance?
6. Consider the patient.
7. Remember the laws and conventions which cover the use of new procedures. Are you prepared to proceed with research-type observations?
8. Better wait, unless you have the facilities and faculties. Better be a conservative than to play the lead in 'Gullible's Travels' or 'Dr. Alice in Wonderland'.

W.H.O. Jr.

Arizona Pharmaceutical Page

WITH OUR BOARD OF PHARMACY INSPECTOR

Yesterday we went into Mr. Blank's pharmacy and asked for 2 oz. Elixer of Phenobarbital. Mr. Blank's pharmacist informed us we must have a prescription in order to purchase this medication. He told us he could not legally sell it otherwise and explained that as the particular preparation we asked for was considered of a dangerous nature by the Federal Food and Drug Administration, and subject to much abuse, we should contact our physician. When he learned we were representing the Board of Pharmacy and that he could have been subject to a fine and the subsequent disgrace of being a law violater had he made the sale, he told us he always turned down requests for dangerous drugs and referred applicants to their physicians. We then collected from Mr. Blank sealed samples for analysis relative their purity and efficacy.

We checked a list of drugs which would spoil if not kept in a cool place and made certain those medicines were under refrigeration. At the time we checked the expiration dates on the packages which tend to lose their potency.

We checked the prescription scales and weights and confiscated two that were not quite up to par. We looked over his graduates, mortar and pestles, funnels, stirring rods, pill tile, homogonizer, suppository mold and other items of equipment to ascertain their condition and cleanliness. We looked over his library to ascertain if he had the required volumes of formulae and reference books.

Then, we checked the cleanliness of the prescription room; its lighting, the storage room; the toilet facilities; the general condition of the merchandise; the condition of the sink and availability of sterilization equipment; how he stored his poisons and narcotic drugs. We looked over the prescription files to ascertain if known users of narcotic or hypnotic drugs were listed on it and checked the myriad licenses and reports required to be kept by every pharmacy.

All of this was checked on the regular inspection chart of the board of pharmacy and percentage points were assigned. Mr. Blank received 91% on the inspection — a top grade, meaning that he has the necessary equipment, stock, facilities, information and ability to fill the prescription you have so carefully written for your sick patient. We spent an hour and a half with this pharmacy and can recommend it to each of you as a proper place to use for dispensing the prescriptions you write. These check sheets are posted in every pharmacy in Arizona. We consider the operation of our pharmacies as health stations and you may check these reports in any of them. The Board of Pharmacy recognizes the main reason for the existence of a pharmacy is to fill prescriptions and we are continually striving to have available for your use the finest pharmaceutical service obtainable.

The Board and every pharmacist in our state, would appreciate any suggestions leading to the betterment of our pharmaceutical service.

TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

A new Isoniazed-type drug with a low toxicity and very promising therapeutic effects is to be reported in the Stanford Medical Bulletin, and later in the American Review of Tuberculosis.

The drug is now called 'GATHALONE' and is D-GLUCURON ISONICOTINYL HYDRAZONE. It contains about 46 per cent isoniazid, and is made in 200 mg. tablets. It was synthesized and given its first testing by the Pharmacy Department of the University of California.

The group since then has completed experiments in tuberculous mice, gotten past the first cautious use in humans, and has now used it for 9 months in two Bay area sanatoria. It compares with other current drugs in animals, and in humans it has several advantages which are notable.

There is almost no toxicity until huge doses are used. The dose now used is 1,800 mg. per day, plus a vitamin B. Complex preparation to prevent neurotoxicity. After a month or two of therapy almost all sputums are converted to negative in all sorts of cases. X-rays routinely show some degree of healing, often marked, in 3 months.

Sensitivity studies have not been possible because of sputum conversion, but tests on isoniazid-resistant strains show no cross resistance. The patients gain weight and improve as they do with INH. There have not been postresection bacterial studies on the lesions, nor any data on the fate after discontinuance of therapy.

The effect of the drug may be due to the high blood levels, which are 14 to 16 mg. % or 5 times higher than isonaizid.

The Mayo Clinic is now using 'Gathalone', and it is to be given to other large hospitals in California. The V.A. is to do a pilot study. Material for experimental series can be obtained from the Barnes-Hind Co. in San Francisco. Needless to say, if this work can be duplicated elsewhere, a most valuable drug will be added to those now at hand. No confirmation yet.

Are you interested in DISEASES OF THE CHEST? Do you like to travel to far places? Are you intrigued by the French and British? Are you free for a week NEXT MAY? . . . . A perfect 'combo' of 'yes' answers could lead you to the AMERICAN ASSOCIATION OF THORACIC SURGERY MEETINGS in Montreal, with the somewhat diluted British & French, on the days of May 3rd, 4th, and 5th . . . The headquarters is the Mt. Royal Hotel (now a Sheraton), and the Canadians have been pretty good hosts in times past . . . If you have a paper in mind, get the data on submission of abstracts, etc., from each issue of the Journal of Thoracic Surgery . . . The king-size, aggressive, politic, cultured secretary is still Dr. Paul (Buck) Samson of San Francisco.

Dr. Richard Kern of Philadelphia asks a forensic question about **allergy** in CALIFORNIA MEDICINE and then answers it. . . . About one in seven (15%) of your patients will have a major allergic episode some time in his lifetime. How can you tell which ones are allergic? . . . Very simple, he says. **Ask them!** They usually know.

Every now and then the opportunity occurs to refer to a past paragraph from this present column. In the present case it isn't to gloat but to add a follow-up. . . . The item of 2 years ago referred to the use of CABBAGE JUICE in treatment of PEPTIC ULCER. Dr. Garnett Cheney of Stanford was responsible. . . . He now reports to the National Gastroenterological Association (hereinafter referred to as the Nat'l. G-I Ass'n.) that a mysterious "Vitamin U" is the essence of the juice from cabbages and certain other fresh vegetables. . . . The material has been concentrated, can be given in capsules, and he expects 9 out of 10 cases to be 'healed. No analysis or synthesis yet, nor any commercial supply.

If you are an obstetrician, or a GP who does obstetrics, and are looking for new frontiers, here's a possibility. . . . TIME Magazine reports that the INCIDENCE OF TWINS is steadily declining. In 1939 one of every 86 births was twin; in 1949 one of every 97; since then, even less . . . The frontier? No reason is known for the decline. . . . Dr. Alan Guttmacher of New York is an identical twin himself. In spite of his special interest he has no specific lead. He thinks it may be an environmental or biologic factor affecting mothers. . . . You can start figuring from the days when tight corsets would have been blamed, and work up to smoking and smog. Good luck!

The GOFMAN TEST has received some asparagus-type remarks (here too), but chiefly

because of its limited present practical use and because of its considerable cost. . . . Actually it is a small piece in the cholesterol-arteriosclerosis jig-saw puzzle, and Dr. John Gofman is quite a research guy. . . . One can predict that someday we will know more about the "large' cholesterol molecules; that a diet-plus-drug routine will become available; and that we cannot only prevent but even treat some types of arterial disease. . . . (This sounds almost like a politician promising a better world.)

Have you seen a CASE OF LEPROSY lately? Or have you learned to call it Hansen's Disease? . . . You COULD see one, since statistics in nearby California show 524 cases reported since 1920. Most of the cases were immigrants, but it was figured that 27 were contracted within the state. Most lepers contract their disease in childhood, and it takes several years to incubate. . . . The sulfone drugs are very valuable, and can be used as a basis of comparison for newer drugs. The non-infectious tuberculoid leprosy may remain at home during therapy, but the dangerous infectious lepromatous cases are safer in a leprosarium until the disease progress is halted. . . . Nearly two-thirds of the lepromatous cases may return to public life after 3 or 5 years of therapy.

'MEDICINE ILLUSTRATED' is a refreshing monthly English journal. It is in its seventh volume, and has everything except color reproductions. . . . The major theme of the journal is its illustrations, and the charts, photography, and drawings are not only well done but break up the text very nicely. The editors had already tended to fracture the old British habit of endless paragraphs and rare sub-titles. . . . Glossy stock, an illustrated cover, three shillings and six-pence per copy, 40 shilling per year in the Empire, $7 in U. S. and Canada. . . . Carry on!

The most formidable and impossible test of a persons diagnostic ability would be to see whether he or she could recognize METASTASIS OF NEOPLASMS to the heart and adrenals. . . . Data from the Walter Reed Hospital on 400 cases of carcinoma, studied clinically and at autopsy, show that the course is indeed sporty. NONE of the 81 instances of adrenal metastasis was picked up ante-mortem. . . . A couple of symptoms and signs can suggest cardiac involvement. The origin of the lesion (lung in 35 cases), and an ACTH test for adrenal insufficiency may give a lead to adrenal lesions.

It is interesting to play a game with 'CANCER-CAUSES' . . . Do the new pieces of evidence lend strength to infection as a cause? Chemical or other types of irritation? Heredity? Endocrine factors? . . . The obvious effect of hormones on cancer of the prostrate and breast makes one keep an eye on the glands. But how about smoking and bronchial lesions (a relationship yet to be thoroughly demonstrated)? . . . It keeps one alert and, unlike strictly spectator sports, we are all potential participants.

Here's a merry-go-round type of logic which just might end up with a good practical result—ISONIAZID has recently been reported to cause a PERIPHERAL NEURITIS. Some of its newer analogues are given in larger doses, and are even more prone to cause nerve disorders. People with TB may also have diabetes. People with diabetes often have neuritis and neuralgias. Vitamin B complex has been used to treat neuritis, often with success. . . . Why not use a poly-B preparation as a preventive when the INH drugs are used, especially in diabetics? Says the echo "Why not?"

ISONIAZID is the current joy of experimentalists. A few cases of almost everything are said to respond to the drug. . . . This isn't very logical since the results in vitro were narrowed down to acid-fast bacilli. It would be worth while to try it when the situation is an impasse, and possibly logical (or logically possible), but avoid fooling self and patient. . . . Chronic discoid LUPUS erythematosis is said to be helped. SARCOIDOSIS has been "clinically improved". .Results in ACTINOMYCOSIS are "encouraging" . . . . We'll give these three a 50 per cent chance, and probably should divide that figure by two.

Sir William Osler warned the medical profession, in a talk at Yale in 1913, of the results which can follow TOO MUCH TENSION AND PRESSURE. He advised how they can be avoided in that lecture, 'A Way of Life'. . . . He urged self-management. One must be conscious of time. One cannot afford not to cultivate the mind. One must live day by day. Keep in contact for a few minutes every day with some part of the world's best literature. Slow your step. Throw off yesterday and tomorrow when you sleep. See what lies clearly at hand. . . . (And, according to most present standards, be a vegetable!)

Dr. Robert Browning of Columbus, Ohio, points out a TB therapeutic fault by using a well-turned phrase. It's a serious fault, too, tho it is hardly fair to criticize a notably effective treatment. . . . Browning says that "TIME LAG" in the use of anti-TB drugs is the fault. It actually is a fault of application, due to the changing methods of use as more information becomes available. . . . Reports do not get out to the physician fast enough, and he does not quickly use them. A failure to correlate usage with rest, pneumo, and surgical therapy may cost the patient dearly as the months and years pass. . . . Watch the Time Lag, gents!

NOT FOR PROFIT

THE HOSPITAL BENEFIT Bulletin

Special Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix December, 1953

Question QUIZ
Do you know the answers?

Q. Under the Surgical Plan does the Association pay surgical fees for injuries resulting from an accident, even though the patient is not hospitalized?

A. Yes. In case of an accident to an HBA member, the doctor may be paid for services given at the scene of the accident, in the home or at the doctor's office, within 24 hours of the accident.

Q. Can doctors help expedite processing of claims?

A. Yes. In fact, the Association wants to pay claims quickly. It will do so if doctors will fill out and return promptly the claim form sen them by the Association.

Q. What per cent of claims submitted to the Hospital Benefit Association require long-claim forms and hospital reports?

A. Approximately 3 per cent require further information to establish date of onset of the illness (only illnesses that actually begin or are diagnosed 30 days after effective date of membership are eligible. Accidents are covered from the first day of membership.

Q. Will the Surgical Plan pay for an X-ray at the laboratory or the doctor's office?

A. Yes — if it is needed because of an accident, and is taken within 24 hours after the accident.

New Television Show Adaptation of "Doctor"

The Hospital Benefit Association's new TV Show, "The Visitor," is an adaptation of the famous series entitled "The Doctor." In these half-hour shows, "The Visitor" takes the TV audience into the private lives of people caught in the web of dramatic circumstance. This new TV show can be seen on Channel 12 over (KTYL-TV) every Thursday, from 7:30 to 8:00 P.M.

Hospital Benefit Association Appreciates Physicians' Cooperation

The Hospital Benefit Association has been especially pleased with the way physicians in Arizona have cooperated. Physicians realize that the Association always tries to be fair and equitable with members, and as a result, have been extremely honest in their statements about the history and symptoms of the patient. The Association, of course, appreciates this cooperation from physicians and considers it a verification of the organization's confidence in the profession.



During the past year, doctors, nurses and staff members of every Arizona hospital have given the Hospital Benefit Association their whole-hearted cooperation. At this holiday season, we of the Association wish to express our heart-felt appreciation and to wish all of you and your families a Merry Christmas and a Happy New Year.

Association Cooperates With Physicians

The Hospital Benefit Association, in turn, cooperates fully with physicians. To conserve their time — and save them trouble — the Association requires oinly a short claim form in the vast majority of cases requiring hospitalization of members. In most cases, the Association authorizes payment to the doctor on the basis of this short bill form submitted by the doctor.

Claim Forms Sometimes Required

Occasionally, however, the Hospital Benefit Association requires a long claim form. It is required only when the Association needs additional information in order to come to a fair and equitable decision on the coverage to which a member is entitled. Such a situation might arise with a new member or in the case of a membership issued with the written understanding that a pre-existing condition would not be covered. Upon occasion, the Association receives a llled-in claim form which the physician does not wish the patient to see. In that case, the Association refers only to "hospital records," rather than to the physician's statements, when explaining to a member why he did not receive benevts.

The Association cooperates with physicians in every way possible and always welcomes any suggestion for improving its services.

A long-time columnist for the Wisconsin Medical Journal, and professor of pharmacy at U. of W. (remember Tryparsamide?), brings out with brutal clarity the frequency of SENSITIZATION TO ANTIBIOTICS. . . . He thinks the incidence will increase, since more and more people are being given the drugs without even a hat being dropped. The total number eligible for sensitivity reactions keeps piling up. . . . He wants to be clear and brutal about it, since the results can be so tragic — not just skin rashes, but anphylaxis and death. . . . The death is just as final whether the former usage was needed or was unjustified, as it so often is. . . And have you got it clearly in mind what you do for acute serious allergy reaction? Should have, and keep the tools handy.

SECOND ANNUAL CANCER SEMINAR

The second annual cancer seminar jointly sponsored by the Arizona division of The American Cancer Society and The Arizona Medical Association will be held at Paradise Inn, Phoenix, Jan. 14, 15, 16, 1954.

This series was started by Dr. Edward H. Bregman, executive chairman of the society and Mrs. Robert H. May, president, as a means of disseminating knowledge of the newer advances in the diagnosis and treatment of carcinoma to the physicians of Arizona and of the Rocky Mountain area.

Last year, there were 225 registrants. Colorado, Wyoming, Utah, California and Nevada were represented.

A program committee composed of Dr. Bregman, Dr. Thomas Bate and Dr. James Barger as co-chairman have arranged a stimulating program for this year's seminar.

ARIZONA DIVISION, AMERICAN CANCER SOCIETY PROGRAM 1954 CANCER SEMINAR

January 14, 1954

9:30 A.M. Recent Advances in Cancer Therapy
(Chemotherapy, Radiation and Radioisotopes)

Panel Members—Paul C. Aebersold, Ph. D., Atomic Energy Commission; Michael DeBakey, M.D., Professor of Surgery, Baylor University; L. H. Garland, M.D., Professor of Radiology, Stanford University; Joe Vincent Meigs, M. D. Professor of Gynecology, Harvard; Orvar Swenson, M.D., Associate Professor of Surgery, Tufts Medical School.

Moderator—Edward Hayden, M.D.. Radiologist, Tucson.

11:00 A.M., Neoplasms of the Central Nervous System

Panel Members—Percival Bailey, M.D., Professor of Neuro-Surgery, University of Illinois; E. S. Gurdjian, M.D., Professor of Neuro-Surgery, Wayne University; Eugene Pendergrass, M.D., Professor of Radiology, University of Pennsylvania.

Moderator—John R. Green, M.D., Neuro-Surgeon, Phoenix.

2:00 P.M., Carcinoma of the Cervix

Panel Members—O. A. Brines, M.D., Professor of Pathology, Wayne University; Joe Vincent Meigs, M.D.; L. H. Garland, M.D.

Moderator—Preston T. Brown, M.D., Gynecologist, Phoenix.

3:30 P.M., Carcinoma of the Breast

Panel Members—Michael DeBakey, M.D.; O. A. Brines, M.D.; Anthony Curreri, M.D., Associate Professor of Surgery, University of Wisconsin; Eugene P. Pendergrass, M.D.

Moderator: Douglas Gain, M.D., Radiologist, Phoenix.

January 15, 1954

9:30 A.M., Exfoliative Cytology

Panel Members—L. H. Garland, M.D.; Joe Vincent Meigs, M.D.; David A. Wood, M.D. Professor of Pathology, Stanford.

Moderator—O. O. Williams, M.D., Pathologist, Phoenix.

10:00 A.M., Surgical Methods for Relief of Intractable Pain

Panel Members—Percival Bailey, M.D.; E. S. Gurdjian, M.D.; Eugene Pendergrass, M.D.:

Moderator—John A. Eisenbeiss, M.D., Neuro-Surgeon, Phoenix.

2:00 P.M., Carcinoma of the Lung

Panel Members—Michael DeBakey, M.D.; Anthony Curreri, M.D.; Eugene Pendergrass, M.D.; David A. Wood, M.D.

Moderator—D. W. Melick, M.D., Chest Surgeon, Phoenix.

3:30 P.M., Trends in Cancer Research

Panel Members—To be presented by Dr. Cameron.

Moderator—Charles S. Cameron, M.D., Medical and Scientific Director of American Cancer Society.

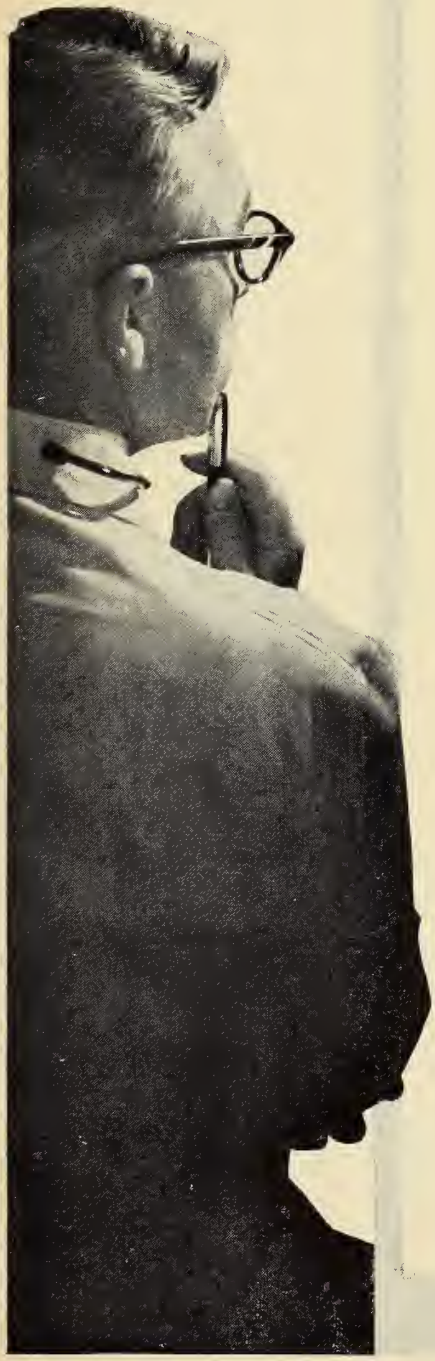
January 16, 1954

10:00 A.M., Leukemia and Lypmhomas

Panel Members—L. H. Garland, M.D.; Orvar Swenson, M. D.; David A. Wood, M.D.

Moderator—Ralph Fuller, M.D., Pathologist,

Doctor, would it be helpful to you in your practice to know that there is a food available at reasonable prices in the stores the year round having these attributes:



1. High public acceptance as to flavor and palatability—billions eaten annually.

2. One of the best of the "protective" foods with a well-rounded supply of vitamins and minerals.

3. Low sodium—very little fat—no cholesterol.

4. Sealed by nature in a dust-proof package.

5. One of the first solid foods fed babies.

6. Can be easily digested by old folks as well as infants.

7. Can be readily eaten out of hand, in milk shakes, on cereals, or in salads.

8. Can be baked, broiled or fried.

9. Can be used as an ingredient product in breads, pies, cakes and desserts.

10. Useful in bland and low-residue diets.

11. Mildly laxative.

12. May be used in the management of both diarrhea and constipation.

13. Can be used in reducing diets.

14. Can be used in high-calorie diets.

15. Useful in the dietary management of celiac disease.

16. Useful in the dietary management of idiopathic non-tropical sprue.

17. Useful in the management of diabetic diets.

18. Valuable in many allergy diets.

19. Belongs among foods useful in certain acute intestinal infections.

20. A protein sparer.

21. Favorably influences mineral retention.

22. Useful in the management of ulcer diets.

23. One of the easiest foods to eat or prepare.

FOR THE NAME OF THIS FOOD, PLEASE TURN THE PAGE



The answer is

B A N A N A S

If you would like

1. The authority for any of the statements made on the preceding page...

2. Additional information in connection with any of them...

3. The composition of the banana . . .

4. The nutritional story of the banana . . .

5. Information on various ways to prepare or serve bananas.

Please feel free to write to

Director, Chemical and Nutrition Research, United Fruit Company

PIER 3, NORTH RIVER, NEW YORK 6, N. Y.

Tucson.

11:30 A.M., Tumors of Childhood

Panel Members—O. A. Brines, M.D.; L. H. Garland, M.D.; Orvar Swenson, M.D.

Moderator—Hugh Thompson, M.D., Pediatrician, Tucson.

All sessions will be held at PARADISE INN. PHOENIX, ARIZONA

Delegates will be housed at Paradise Inn and other resort hotels of the area.

All of last year's registrants will receive programs and registration blanks. Attendance this year will be limited to 300. Any physician desirous of obtaining registration blanks can write to Mrs. Robert May, % The American Cancer Society, 1429 North First St., Phoenix, Arizona, or Dr. Edward H. Bregman % X-ray Department, Good Samaritan Hospital, Phoenix, Arizona. The registration fee is $5.00.

A CORRECTION

On page 409, November, 1953 issue of Arizona Medicine. Dr. O. J. Farness's article "Tuberculosis Problem in Arizona." Second paragraph line 7, the line reads as follows: "492 persons died of tuberculosis." That line should have read "402 persons died of tuberculosis."

IN MEMORIAL

Marshall E. Burgess, M. D.
August 26, 1879 – September 23, 1953
Past President of the
Gila County Medical Association
Member of the Fifty Year Club
Arizona Medical Association
Member of the Miami Chamber of Commerce
Miami B. P. O. E.
Miami Lions Club
Mayor of Miami, Arizona

Whereas God in his infinite wisdom, has chosen to take from us Marshall E. Burgess, of Miami, Arizona. Now we of the Gila County Medical Society of which he was an honored member comment as follows:

His was a kind and loving nature; his was a gracious and grateful attitude toward all mankind whether rich or poor; his was a character of high moral virtue and supreme unselfishness to others.

In the highest tradition of the only profession which speaks the only Universal Language—the Profession of Medicine—he dedicated his life and worthiness to its ideals.

Therefore we deplore his untimely death.

We extend to his bereaved and beloved wife and all his relatives our sincerest sympathies.

Gila County Medical Society

The Professional Board

ARIZONA'S MENTAL HEALTH PROGRAM

Ernest A. Born, M.D.

Mental health and its problems in Arizona first received attention as a permanent field of endeavor for a particular body of the Arizona Medical Association with the appointment of the Sub-Committee on Mental Diseases by the Professional Board at its first meeting in 1947. Prior to this time, action on mental health problems was handled, as occasion arose, by Council and the House of Delegates. The first year of activity, the Sub-Committee on Mental Diseases was concerned principally with the Arizona State Hospital; a center of political controversy and confusion. Great progress could have been made had only a small of the attention, given to political bickering and bad pubilicity, been directed towards the care of the mentally ill and improvement of the institution.

Dr. John A. Larsen was appointed as superintendent to the institution in March, 1947, and incurred the displeasure of the politicos and controlling body by instituting a plan of care which was to substitute active treatment for domicilary care which had been the rule of the hospital for many years. His aim was to reduce the overcrowding by returning to civil life all possible cases, by active treatment measures, and segregating all inmates into categories according to their prognosis as to recovery, instituting active treatment on all those likely to be cured. Dr. Larsen's objective was to secure for the institution, the approval of the American Psychiatric Association as well as the American College of Surgeons. His methods, if not his intent, were not condoned by his superiors and were considered too radical and Dr. Larsen saw fit to seek greener pastures; however, his turbulent tenure of office did a great deal for our State Hospital. Succeeding superintendents have been accountable to a non-political board, and were left a foundation as well as a goal to work toward.

The principal fault with our State Hospital has been, and still is, one of over-crowding. Present capacity of the hospital is less than 1,000 beds and the patient load usually exceeds 1,600, and it ranks as the most crowded hospital in the United States for the treatment of the mentally ill; carrying an over-load of 63%, according to the 1952 report. This one handicap would make it difficult for any superintendent to make a good showing regardless of his efforts and aims. The arrangement and physical set-up preclude proper proper segregation as well as adequate security measures, permitting escapes which lead to bad publicity.

Appropriations have been received for three new buildings; one a 200-bed treatment building, providing an open-type ward; a separate building for 100 tuberculous patients; and another building to house 100 seniles of both sexes; this will greatly improve the over-crowded situation at the hospital. Construction of these buildings is under way pending approval of the best type of architectural planning. Dr. M. W. Conway, the present superintendent, is hopefully awaiting these improvements which will relieve his over-crowded situation. He has made several improvements in the handling of food and sanitation of the institution as well as landscaping some of the property. He has, also, provided recreational grounds for the care of the patients.

Only recently, the Board of Control of the State Hospital, has asked for a Medical Advisory Board to be provided by the Arizona Medical Association. The Council has approved the present Sub-Committee on Mental Diseases to act as this Board. We are hopeful that this will provide better liason between the institution and the Arizona Medical Association.

Other activities of the Sub-Committee on Mental Diseases have been to

(Continued on the Next Page)

provide lists of subjects and speakers from the Arizona Psychiatric Association which are available to the State Medical Association for programs on local or county meetings. The Sub-Committee, in co-operation with the State Bar Association, amended the State code with regard to commitments. The new revision is an improvement over the old; however, it is not the model code the Sub-Committee presented as approved by the A.P.A.

It is hoped that the mental health program, in Arizona, can be improved or rendered more effective by co-operating with the newly formed Committee on Mental Health of the American Medical Association, now engaged in correlating all existing state and county mental health organizations with a view toward establishing a coordinated planning for mental health throughout organized medicine.

Present membership of the Sub-Committee on Mental Diseases is: Dr. John R. Green, Phoenix; Dr. Lindsay E. Beaton, Tucson; Dr. Richard E. H. Duisberg, Phoenix; Dr. William B. McGrath, Phoenix, and Dr. Ernest A. Born, Prescott, Chairman.

Woman's AUXILIARY

CIVIL DEFENSE

The Women's Auxiliary to the Arizona Medical Association is now entering its third year in assisting the physicians of this state in their civil defense program. Today the auxiliary has assumed an important role in the medical set-up and has become a vital part of the Arizona state defense program. America, in war or peace, needs the facilities that the C. D. offers. Our program means preparedness in time of disaster.

Accordingly, under the chairmanship of Mrs. William McKersie, the national civilian defense section of the American Medical Association has been divided into four regional areas. Arizona is a member of the western C. D., headed by Mrs. Frederick J. Miller of Bakersfield, California. Our pattern of organization consists of a state representative and a chairman of each county auxiliary.

Pima County, realizing the need for education and organization among their members, sent their representative to the western training school in California along with the leaders of the other groups. This was arranged through the local office so that these trained women could return and set up educational courses to train other workers. The second one of these schools was held this year. A two day orientation course was held in Tucson under the auspices of Mrs. Grace Doebler, assistant director of the Pima County Civilian Defense Program.

In 1954 we will strive for four main objectives:

1. The training of county chairmen. This will be done in the school previously mentioned. We were privileged to have Maricopa county's representative, Mrs. Ruland W. Hussong of Phoenix, attend our October meeting.

2. Family action program. The National Civilian Defense has put out an instructors manual enabling each chairman to go into her organization and teach protection of the family and home in time of disaster.

3. Civilian defense presentation program. Each county representative has set aside at least one or more meetings for comprehensive instruction. This is facilitated by films and speakers.

4. Coordination with state officials. Each county auxiliary chairman has contacted her local office with offers of assistance and co-operation. We have been working jointly with our local civilian defense chiefs in the establishment of casualty clearing stations.

As always, we are endeavoring to improve public relations and to render service to our community and to our doctors.

Mrs. Frank A. Shallenberger
State Civil Defense Chairman

NEWS ITEM

We regret to announce that Graham County has disbanded. We will miss them from the ranks of organized auxiliaries, but hope to welcome each one of them as a member-at-large.

Mrs. George S. Enfield



In very special cases
A very superior Brandy



Specify 84 PROOF

★ ★ ★

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

For a beautifully illustrated book on the story of Hennessy, write—

Schieffelin & Co., Dept. HT, 30 Cooper Square, N. Y. 54

TRUSSES — SURGICAL SUPPORTS

GROVE'S

Surgical Supports Store
3123 N. Central — Phone CR 4-5562
Lady and Man Fitter — Fitted Exactly As You Order
Across from Park Central Development On Central Avenue — Private Fitting Rooms
Free Parking — Open Wednesday Nights

RADIUM and RADIUM D+E

(Including Radium Applicators)

FOR ALL MEDICAL PURPOSES

Est. 1919

Quincy X-Ray and Radium Laboratories

(Owned and Directed by a Physician-Radiologist)

Harold Swanberg, B. S., M. D., Director

W. C. U. Bldg. Quincy, Illinois

ARIZONA LIBRARY BINDING COMPANY

Binders of Medical Journals and Books
We Pay Freight Charges on Return Shipments
Prompt Service

Arnold A. Couturier

307 West Monroe — Phone ALpine 3-1861
Phoenix, Arizona

Auralgan
In Acute Otitis Media
Rhinalgan
Safe Nasal Decongestant
O-tos-mo-san
In Fungus and Bacterial Ears

PAUL DESILETS

Representative
515 Ocean Ave. — Seal Beach, Calif.
DOHO CHEMICAL CORP.
100 Varick Street, New York 13, N. Y.
Telephone Worth 2-7707

NEWS ITEM

DONALD J. McNAIRY, M.D., Phoenix, is attending the meeting of the American Academy of Dermatology and Syphilology. This meeting will last a week and Dr. McNairy, is on the teaching staff for that week teaching medical photography. The dates are Dec. 5 to 10.

HILL-BURTON HOSPITAL CONSTRUCTION IN ARIZONA

COMPLETED AND IN OPERATION: Eight projects at a total cost of $9,168,590, including federal contribution of $2,632,516 and supplying 621 additional beds.

UNDER CONSTRUCTION: Five projects at a total cost of $2,558,906, including federal contribution of $822,496 and designed to supply 286 additional beds.

APPROVED BUT NOT YET UNDER CONSTRUCTION: One project at a total cost of $24,000, including federal contribution of $12,000.

MEDICAL - DENTAL OFFICE

Seven rooms — Parking area
718 N. Country Club Road
Tucson, Arizona
PHONE 4-1971 or 6-5937

SCOTTSDALE

Arizona's Most Progressive and fastest growing community with high per capita income.
Has an ideal Office Building, residence in rear.
Combination available for lease or sale.
PHONE: WHitney 5-6247 or WHitney 5-6242

ALCOHOLIC ANONYMOUS

"Fifth Annual International Group of Doctors in Alcoholic Anonymous, Mayflower Hotel, Akron, Ohio, May 14, 15, and 16, 1954. For information and reservations address: Doctor Mayflower Hotel, Akron, Ohio."

LABORATORIES

PROFESSIONAL X-RAY AND CLINICAL LABORATORY

507 Professional Bldg.
Phoenix, Arizona
Phone ALpine 3-4105

AND

MEDICAL CENTER X-RAY AND CLINICAL LABORATORY

1313 North 2nd Street
Phoenix, Arizona
Phone ALpine 8-3484

DIAGNOSTIC X-RAY — X-RAY THERAPY
RADIUM THERAPY
CLINICAL PATHOLOGY — TISSUE PATHOLOGY
ELECTROCARDIOGRAPHY — BASAL METABOLISM

R. Lee Foster, M.D., Director — John W. Kennedy, M.D., Radiologist
W. Warner Watkins, M.D., Radiologist
Diplomates of American Board of Radiology
Lorel A. Stapley, M.D., Consultant Pathologist

UNIVERSITY OF CALIFORNIA
Medical Center Library

THIS BOOK IS DUE ON THE LAST DATE STAMPED BELOW

Books not returned on time are subject to fines according to the Library Lending Code.

Books not in demand may be renewed if application is made before expiration of loan period.

APR 1958

10m-12,'54(9093s4)4128

92100